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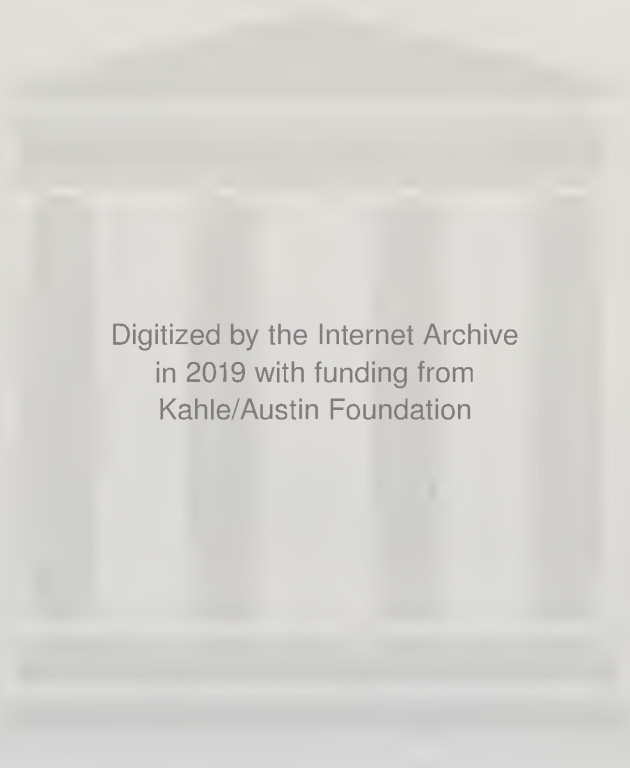

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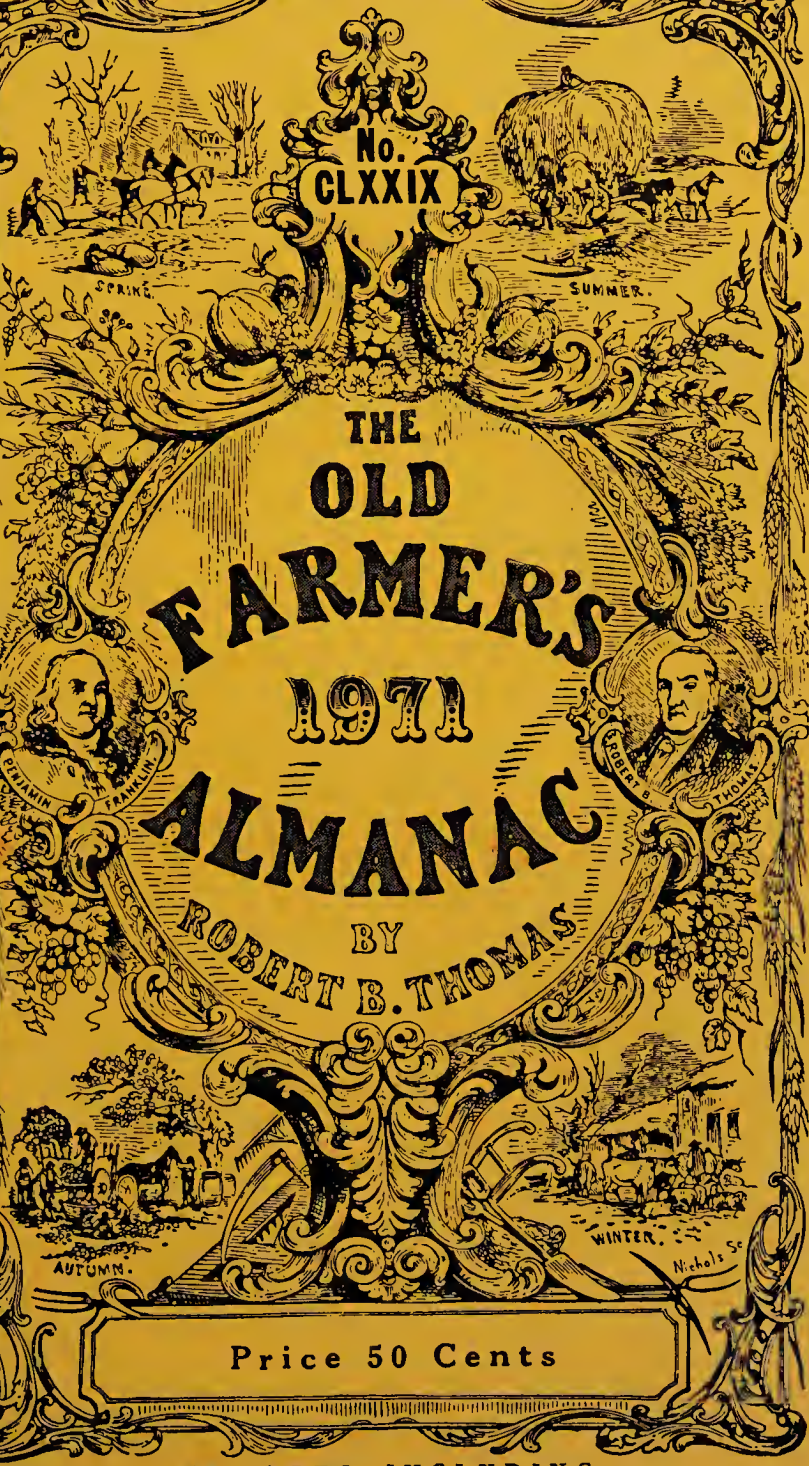

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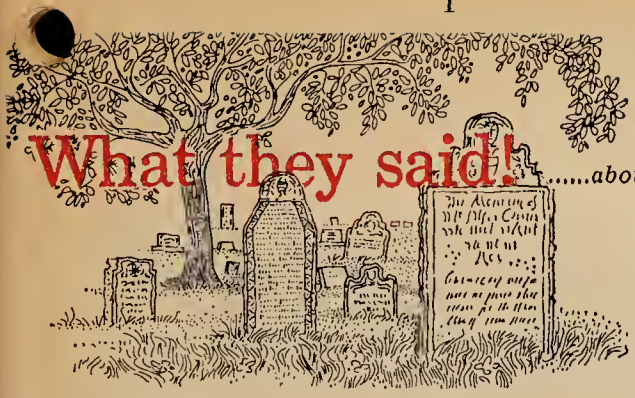

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RED LEAF BARBERRY	.39 ea.
SPIREA VAN HOUTTEI; White	.19 ea.
SPIREA; Anthony Waterer Owarf Red	.39 ea.
PINK SPIREA	.15 ea.
BRIOAL WREATH SPIREA; Oouble White	.39 ea.
REO CORALBERRY	.19 ea.
FORSYTHIA; Yellow Flowers	.15 ea.
RED FLOWERING QUINCE	.25 ea.
DEUTZIA; or Mockorange	.15 ea.
JAPANESE SNOWBALL	.39 ea.
PERSIAN LILAC; Orchid Color	.29 ea.
OLO TIME LILAC; Large Purple	.49 ea.
FLOWER ALMOHO; Oouble Pink	.49 ea.
TAMARIX; Lovely Pink Flowers	.35 ea.
REO OZIER OOGWOOO	.15 ea.
HIBISCUS; Giant Blooms	.12 ea.
NYORANGEA; Arborescens Collected	.19 ea.
NYORANGEA; Hills of Snow	.25 ea.
PUSSY WILLOW	.19 ea.
RUSSIAN OLIVE	.19 ea.
SWEET SHRUB; Reddish Brown Flowers	.15 ea.
CYOONIA JAPONICA; Orange Red	.25 ea.
ALTHEA ROSE SHARON; Mixed Colors	.09 ea.
CRAPE MYTRLE; Red or Pink	.45 ea.
FRENCH LILAC; Red, White, Purple	.95 ea.
NAROY AZALEA; Red, Pink, White	.59 ea.
BUTTERFLY BUSH; Purple, Pink	.49 ea.
SCOTCH BROOM; Golden Flowers	.15 ea.

FLOWERING TREES

MAGNOLIA GRAHOIFLORA; 1 to 2 ft.	.49 ea.
PINK FLOWERING OOGWOOO; 2 to 3 ft.	1.59 ea.
PINK FLOWERING OOGWOOO; 3½ to 5 ft.	2.98 ea.
WHITE FLOWERING OOGWOOO; 2 to 3 ft.	.19 ea.
WHITE FLOWERING OOGWOOO; 4 to 6 ft.	.79 ea.
*TULIP TREE; 3½ to 5 ft.	.39 ea.
FLOWERING PEACH; Red, Pink, 2 to 3 ft.	.89 ea.
FLOWERING CRAB; Red, Pink, 2 to 3 ft.	.89 ea.
PINK FLOWERING MIMOSA; 3 to 4 ft.	.39 ea.
VELVET ASN; 1 to 2 ft.	.39 ea.
JAPANESE FLOWERING CHERRY; 2 to 3 ft.	3.98 ea.
PURPLE LEAF PLUM; 2½ to 4 ft.	.45 ea.
CHINESE REO BUO; 1 to 2 ft.	.69 ea.
GOLOEN RAIN TREE; 1 to 2 ft.	.89 ea.
GOLOEN CHAIN TREE; 1 to 2 ft.	.89 ea.
SMOKE TREE; 1 to 2 ft.	1.25 ea.
AMERICAN REO BUO; 3 ft. .25 ea., 4 to 6 ft.	.69 ea.
*TREE OF HEAVEN; 3½ to 5 ft.	.39 ea.
MAGNOLIA SOULAHGEANA; 1 to 2 ft.	1.29 ea.
EUROPEAN MOUNTAIH ASH; 3 to 4 ft.	3.98 ea.
PAUL'S SCARLET HAWTHORN; 3½ to 5 ft.	3.98 ea.
OOUBLE PINK FLOWERIHG CHERRY; 3 to 4 ft.	3.98 ea.

FAST GROWING SNAOE TREES

SILVER MAPLE; 3½ to 5 ft.	.39 ea.
CHINESE ELM; 3½ to 5 ft.	.49 ea.
CHINESE ELM; 5½ to 7 ft.	.98 ea.
LOMBAROY POPLAR; 3½ to 5 ft.	.19 ea.
LOMBAROY POPLAR; 5½ to 7 ft.	.49 ea.
WEEPING WILLOW; 4 to 6 ft.	.49 ea.
SUGAR MAPLE; Collected, 3½ to 5 ft.	.39 ea.
PIN OAK; SCARLET OAK; 3½ to 5 ft.	.98 ea.
FAASEN RED LEAF MAPLE; 3½ to 5 ft.	3.49 ea.
WHITE BIRCH; 2 to 3 ft.	.45 ea.
SYCAMORE; 3½ to 5 ft.	.49 ea.
SWEET GUM TREE; 2 to 3 ft.	.39 ea.
GIHKGO TREE; 1 to 2 ft.	.89 ea.
CATALPA; FISH BAIT TREE; 2 to 3 ft.	.25 ea.
CRIMSON KING MAPLE (Pat. No. 735); 3½ to 5 ft.	3.49 ea.
SUNBURST LOCUST (Pat. No. 1313); 4½ to 6 ft.	4.35 ea.
ROBIHA TREE, BLACK LOCUST; 3 to 4 ft.	.49 ea.
CUTLEAF WEEPING BIRCH; 3 to 4 ft.	2.98 ea.
JAPANESE REO LEAVEO MAPLE; 1 to 2 ft.	1.25 ea.
SASSAFRAS; 2 to 3 ft.	.59 ea.

EVERGREENS—For Lasting Beauty

PFITZER JUHIPER—IRISH JUNIPER; ½ to 1 ft.	.49 ea.
HETZI HOLLY—OWARF HOLLY; ½ to 1 ft.	.49 ea.
*AMERICAN HOLLY; REO BERRIES; ½ to 1 ft.	.19 ea.
NAHOINA; REO BERRIES; ½ to 1 ft.	.49 ea.
BOXWOOO; TINY LEAVES; ½ to 1 ft.	.35 ea.
CHERRY LAUREL; ½ to 1 ft.	.29 ea.
*MOUHTAIN LAUREL; 1 ft.	.15 ea.
*CANAOIAN HEMLOCK; 1 ft.	.15 ea.
*RHOOOOENOHON; ½ to 1 ft.	.29 ea.
*LARGE LEAF FERH	.15 ea.
REO BERRY PYRACANTHA; ½ ft.	.49 ea.
COLORAOO BLUE SPRUCE; ½ to 1 ft.	.39 ea.
WAX LEAF LIGUSTRUM; ½ to 1 ft.	.39 ea.
BUFOROI NOLLY; ½ to 1 ft.	.49 ea.
WHITE PINE; ½ to 1 ft.	.19 ea.
JAPANESE YEW; ½ to 1 ft.	.89 ea.
GOLOEN-OR-GREEN ARBORVITAE; ½ to 1 ft.	.69 ea.
EUOHYMUS COLORATUS-WINTER CREEPER; 1 yr.	.29 ea.
EUOHYMUS RAOICANS; ½ to 1 ft.	.19 ea.

VINES AND FRUITS

REO SCARLET HOHEYSUCKLE	.25 ea.
PURPLE WISTERIA	.25 ea.
BITTER SWEET	.17 ea.
*CLEMATIS VINE	.18 ea.
EHGLISH IVY	.39 ea.
VINCA MINOR	.09 ea.
TRUMPET VINE	.15 ea.
OEWBERRY—1 year plants	.25 ea.
RASPBERRY—1 yr. Red or Black	.35 ea.
10 ASPARAGUS—for	1.00
10 RHUBARB—for	1.00

FRUIT ANO NUT TREES

COHCORO GRAPE VINE	.45 ea.
APPLE TREES; Red and Yellow Oelicious, Stayman, Winesap, Early Harvest, Red Rome Beauty, Prices 2 to 3 ft., .89 ea.; 3½ to 5 ft.	1.25 ea.
PEACH TREES; Elberta, Belle Ga., Hale Haven, Golden Jubilee, Oixie Red, Prices 2 to 3 ft.	.89 ea.
5-N-1 APPLE; 5 Varieties on ea. Tree, 3 to 4 ft.	2.49 ea.
PLUM; Burbank, Matheley, 2 to 3 ft., .89 ea.; 3½ to 5 ft.	.85 ea.
PEAR; Kieffer, Bartlett, 2 to 3 ft.	1.25 ea.
MONTMOREHCY CHERRY; 2 to 3 ft.	1.49 ea.
APRICOT TREE; 2 to 3 ft., .89 ea.; 3½ to 5 ft.	1.25 ea.
ENGLISN WALNUT; 2 to 3 ft.	2.49 ea.
BUTTER NUT; 1 to 2 ft.	.39 ea.
NAZEL NUT; 1 to 2 ft.	.89 ea.
HAROY PECAN SEEOLINGS; 1 to 2 ft.	.89 ea.
CHIHESE CHESTHUT; 1 to 2 ft.	.89 ea.
PAPERSHELL PECAN; 3 to 4 ft.	3.49 ea.
OWARF PEACH; Elberta, 2 to 3 ft.	2.69 ea.
DWARF APPLE; Red and Yellow Oelicious, 2 to 3 ft.	2.69 ea.
OWARF PEAR; Bartley, 2 to 3 ft.	2.69 ea.
DWARF PLUMS; 2 to 3 ft.	2.69 ea.
OWARF MONTMORENCY CHERRY; 2 to 3 ft.	2.69 ea.

HEOGE PLANTS—1 to 2 Feet Tall

50 SOUTH PRIVET EVERGREEN HEOGE for	.98
25 MULTIFLORA ROSE for	1.49
25 GOLOEH BOROER FORSYTHIA for	2.00
25 LOMBAROY POPLAR; For Hedge for	2.00
*25 EVERGREEN HEMLOCK HEOGE for	3.50
*25 REO CEOAR for	2.50
*25 SHORT LEAF PINE for	2.50
25 CALIFORNIA PRIVET HEOGE for	1.50

All plants listed are 1 or 2 years old.

Order as many or as few plants as you wish. All plants are nursery grown, from seeds, cuttings or budded stock except those marked with (*) which means those are collected from the wild state. All plants inspected by the Tenn. Dept. of Agriculture. This is your opportunity to buy good plants at low grower prices.

OUR GUARANTEE: If you are not entirely satisfied on arrival return in 10 days. We will replace plants or refund your money. Add 89¢ for postage and packing. If shipped C.O.D., you pay postage and C.O.D. fee.

BONUS PLANTS: On all orders over $4.00 you get 2 extra flowering shrubs (our choice). Orders in the amount of $6.00 or more you get 4 extra flowering shrubs FREE (our choice). Order now.

VERNON BARNES NURSERY

P.O. Box 250-FA
McMINNVILLE, TENNESSEE

PROVEN IN THE LABS — PROVEN ON THE ROAD — PROVEN ON THE INDIANAPOLIS SPEEDWAY — and finally released to the public!

NOW! 30 DAYS OF DRIVING

— even more startling, now save up to $16 a month, up to 50 gallons of gas each month, without changing a single part on your car!

Laboratory reports . . . PLUS road tests conducted on Indianapolis proving grounds reveal you may now get as much as 37 miles of driving from each gallon of gas . . . save up to 50 gallons of gas each month . . . save up to $200 on your car each year!

Six months ago, for perhaps the first time in history, the United States Government issued patent protection to an invention tbat has been classified ILLEGAL! Sound strange? Not really here's why:

I'm sure you're familiar with the famous gasoline-economy tests run by all the major oil companies. Well, do you know that the remarkable new invention described on this page is actually banned from these tests because it is TOO EFFECTIVE! Do you know because this invention saves so much gasoline . . . that because it gives so much economy, it is actually ILLEGAL for a test-driver to fit one on his car! And do you know that because it boosts gasoline mileage up to 11 more miles per gallon . . . it bas actually been OUTLAWED in every recognized cross-country economy run . . . simply because the officials who conduct these tests were forced to rule that it gives all cars that have it AN UNFAIR ADVANTAGE!

In other words, if you are a person planning on entering one of these cross-country economy runs . . . then this message is not for you. YOU JUST WON'T BE ALLOWED TO USE THIS NEW INVENTION —SORRY, BUT IT'S SIMPLY ILLEGAL. BUT — if you are a person who is not interested in setting any recoords . . . who is only interested in getting more miles per gallon than you ever dreamed possible — and doing it the very same way that many of America's leading corporations are doing at this very moment — then what you are about to read is perhaps the most thrilling and exciting news in automotive history.

TEST DRIVERS REPORT UP TO 11 MORE MILES PER GALLON —

The name of this great new invention is the G. T. ENERGY CHAMBER . . . and there is no better way to describe to you the increased performance and economy it will give you . . . than to tell you of the "bombshell effect" it hand on research scientists and test-drivers, who simply refused to believe their own gasoline gauges when they first tried it out. Look:

CUTS GASOLINE COSTS TO AS LITTLE AS 1¢ A MILE

1. When the G. T. ENERGY CHAMBER was first tested by the same research laboratories used by Ford, General Motors and Chrysler . . . results were so overwhelming, (a staggering increase of up to 68 per cent) . . . it actually lowered gasoline costs to as little as **ONE CENT A MILE.**

2. When tests were made by the world's leading auto rental system with this incredible money saving invention . . . and then test-run on the road and on sucb world famous proving grounds as the Indianapolis Speedway . . . the test-drivers of these vehicles were absolutely amazed to see big 8 cylinder sedans **get better gas-mileage than small European economy cars!**

3. When large fleet owners and some of the nation's largest taxi fleets tested this great new invention to determine just how much gas it would save them . . . the results were so dramatic that within 30 days they reported savings of not hundreds . . . but thousands of gallons of gas the very first month alone!

UP TO 500 MILES OF DRIVING FROM A SINGLE TANK OF GAS

Yes, from test after test . . . road tests, laboratory tests, tests by some of the world's most famous drivers . . . come reports of cars that drive for hundreds and hundreds of miles ON A SINGLE TANK OF GAS! Reports of test cars from Ford, General Motors, Chrysler that get more miles per gallon today than when they were brand new! Reports of big, luxury sedans that weigh 2½ times more than small European cars . . . yet get better mileage, better performance and huge dollar savings thanks to this new miracle invention.

IF IT WORKS SUCH MILEAGE-MIRACLES, HOW COME THE CAR MANUFACTURERS HAVEN'T INSTALLED THIS TYPE UNIT IN THEIR CARS? — THE ANSWER IS THAT TWO ALREADY HAVE!

By now you are probably wondering just what is the G. T. ENERGY CHAMBER . . . and how does it work? Well, to make a long story short . . . if you were to look under the hood of one of those $20,000 European luxury cars like the Maseratti or the Aston-Marton, you would see sitting in those engines . . . a special gasoline unit . . . especially designed to extract more blazing power, more energy from each gallon of gasoline. This remarkable booster-unit is what gives these cars such magnificent performance . . . such TOTAL POWER . . . such increased engine efficiency. And this is precisely what the G. T. ENERGY CHAMBER is designed to do — enable your engine to extract more piston-driving power, more raw, blazing energy and more gasoline economy . . . ONLY, instead of costing $100 to $150 (like the European booster-units) . . . the G. T. ENERGY CHAMBER costs but a mere fraction.

LOOK HOW EASY IT IS!

All you do is simply attach the G. T. ENERGY CHAMBER on your fuel line. Since it is a precision instrument, with a special model for each make car, there are no special adjustments for you to make. They've already been made for you at the factory. You simply screw it into place . . . and that's all. In fact, it's so easy you need not know a single thing about an engine to install it — and easy picture directions accompany each unit. Total installation time: 3 to 5 minutes. Total savings on gas: up to $200 a year!

Yes, proven at Indianapolis — proven in the same test laboratories used by Ford, General Motors and Chrysler . . . proven by the world's largest automobile fleet owners! An exciting new scientific "breakthrough" that means . . . no matter what kind of gas you use . . . no matter what kind of car you own you can now pile up 100 miles of driving a week, month after month and fill your gas-tank as little as once a month . . . pile up 100 miles of driving a day all 365 days of the year . . . and save up to 500 gallons of gas each year!

ON A SINGLE TANK OF GAS!

BEST PROOF OF ALL!

World's Leading Rent-A-Car Company Road-Tests Amazing New Invention For 3 Solid Months . . . Then Orders Fleet Of Cars IMMEDIATELY EQUIPPED! they report "Savings of up to 54-gallons a month per car"

Yes, from one of the nation's largest automobile fleet owners comes the most dramatic proof of all . . . A company that spends more money on gasoline in one weekend than the average person spends in a lifetime . . . they tested this incredible new invention and here is what they found. BOOSTED GASOLINE MILEAGE A WHOPPING 32% ON ALL CARS TESTED. Wouldn't you like to save up to $200 a year on your car? For full details read the rest of this page.

HERE IT IS — IN ACTION — The miracle G. T. ENERGY CHAMBER, caught by the eye of ultra high-speed cameras at one of the world's most famous proving grounds. Yes, here on the big viewing console you see dramatic picture-proof of tests conducted by leading automotive authorities at the Indianapolis Speedway . . . tests that PROVE you can now actually take ordinary gasoline . . . feed it into your engine in a new and different way . . . trigger it into piston-driving energy . . . and unleash a blazing source of power for your car. For full documented proof of just how this amazng new discovery can save you up to $200 in gasoline bills in the next 12 months . . . read the rest of this page. (Tests performed by official Indianapolis test driver.)

That's because after years of intensive research automotive experts have finally found a way to simplify these booster units . . . reduce the number of parts in each unit . . . mass produce them . . . slash costs to a mere fraction . . . and make them available at a price so low it's almost too ridiculous to mention. Why do you realize what this means to you if you are a person who is determined to save yourself up to $16 a month on your gas bills . . . up to 50 gallons of gas each month . . . yes, up to $200 a year on wasted gasoline.

INSTALLS IN MINUTES — PAYS FOR ITSELF IN AS LITTLE AS 15 DAYS!

It means that no matter what kind of car you now have . . . no matter how old that car may be . . . no matter what condition it is in . . . no matter how many miles you pile on each month . . . here at last is the automotive discovery you've long dreamed about . . . and has now come true.

Because, from this day on you too can now save up to 500 gallons of gas each and every year. NOW you too can drive for weeks and weeks on end without ever stopping at a service station. Now you too can drive across 6 states of the union on just a single tank of gas, blaze a trail from New York to Chicago on just 2 or 3 tankfuls. In other words, perform mileage miracles that only yesterday you thought were impossible.

So if you too want to achieve the same wondrous results as America's largest automotive fleet owners, by Indianapolis test-drivers, and by research scientists at the very same testing laboratories used by Ford, Chrysler and General Motors, then take advantage of this special Free-Trial introductory offer. Remember, all you risk is the few minutes it takes to fill out the special reservation coupon below, and you have a lifetime of driving convenience and economy to gain.

THIS OFFER EXPIRES IN 15 DAYS — YOU MUST ACT NOW!

Now the price of the G. T. ENERGY CHAMBER on this special introductory offer is not the 15 or 20 dollars you might expect . . . but only $5.95. Why, you'll save up to 10 times that amount in gasoline savings in no time at all . . . not to mention the hundreds of gallons of gasoline and hundreds of dollars in money you save year after year.

However, due to the enormous demands of trucking companies, car-rental companies, taxi-cab fleets and other large users, only a limited number of G. T. ENERGY CHAMBERS can possibly be allocated each month for consumer orders. Therefore, all orders must be filled on a first-come, first-served basis. So to take advantage of this limited introductory offer . . . mail the no-risk coupon today!

ORDER TODAY — ON FULL MONEY BACK GUARANTEE

AMERICAN AUTOMOTIVE UNITS INC., Dept. 2052
4806 Bergenline Avenue, Union City, N. J. 07087

Please rush me the sensational **G. T. Energy Chamber** immediately! I understand the price is $5.95 for which I enclose cash, check or money order. It is understood that I may return the unit anytime for full purchase price refund if I am not fully satisfied.

Make of Car_____ Year_____

NAME_____

ADDRESS_____

CITY_____ STATE_____ ZIP_____

SPECIAL OFFER: Purchase one for yourself and one for a friend and save even more. Order two **G. T. ENERGY CHAMBERS** for just 10.95 (a savings of $1.00) same guarantee as above. Make of Second Car. . . . . Year . . . . .
( ) C.O.D. orders enclose $1.00 deposit. Same money back guarantee.

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WEATHER FORECASTS

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For New England — see page 92
For Eastern States — see page 96
For Midwestern States — see page 100
For Great Plains — see page 106
For Pacific Northwest — see page 110
For Southern States — see page 112
For Anywhere by Moon — see page 120
For Northern New England Skiing — see page 94

Readers will please note that the weather forecasts throughout this almanac may be read directly without correction for all the regions indicated above.

FOR TIMES OF SUNRISE, SUNSET, MOONRISE, MOONSET, AND PLANETS — SEE PAGE 91 AND—

For New England — see page 94
For Eastern States — see page 98
For Midwestern States — see pages 102, 104
For Western and Mountain States — see page 108
For Southern States — see page 114

KEY LETTER CORRECTIONS—The Key letters for corrections to areas outside of Boston are found on pages 24-46.

TIDES

See pages 24-46 for times of morning and evening high tides. See pages 25-47 for heights of same. To correct these times for your locality, see page 84.

THE
(OLD)

FARMER'S ALMANACK,

CALCULATED ON A NEW AND IMPROVED PLAN
FOR THE YEAR OF OUR LORD

1971

Being 3rd after BISSEXTILE or LEAP YEAR, and (until July 4)
195th year of American Independence

FITTED FOR BOSTON, AND THE NEW ENGLAND STATES, WITH SPECIAL CORRECTIONS AND CALCULATIONS TO ANSWER FOR ALL THE UNITED STATES.

INCLUDING THE DABOLL ALMANAC OF NEW LONDON, CONN. FOUNDED IN 1773 BY NATHAN DABOLL.

Containing, besides the large number of Astronomical Calculations and the Farmer's Calendar for every month in the year, a variety of

NEW, USEFUL, AND ENTERTAINING MATTER.

ESTABLISHED IN 1792

BY ROBERT B. THOMAS.

The new decade begins, last year ended the old
As if the forthcoming cycles and turns of events
Needed one year of practice before setting the molds
Of weather and wars, marriages, fortunes, and accidents.

The sixth and the tenth years carry the extremes.
In 1976 comes the Revolution's 200th, it seems,
Bringing peace here at home, good weather too,
But the tenth—1980—will he quite a hrew.

R. S.

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Address All Correspondence to
THE OLD FARMER'S ALMANAC
DUBLIN, N. H. 03444, U.S.A.

In Dedication

ROBB SAGENDORPH (1900-1970)

Eleventh Editor of The Old Farmer's Almanac(k)

Nothing could be more symbolic of Robb Sagendorph, editor and publisher of this publication since 1939, than the fact that he passed on shortly after noon on the Fourth of July, 1970, Independence Day. To call Mr. Sagendorph independent would be a great understatement; he was one of a kind, a man who to a remarkable extent made his own rules and then lived by them regardless of what fad or fashion the rest of mankind was following at the time.

After graduating from Harvard College and Business School, he worked briefly in his family's steel business but in 1930 left the city to become a writer and farmer in Dublin, N.H. When his articles were rejected by other magazines, he was not discouraged — he simply started *Yankee Magazine*, a New England regional magazine which now has a circulation of 450,000 monthly.

In 1939, *The Old Farmer's Almanac* was floundering. Circulation had dropped to 88,000 copies annually and it seemed that this venerable publication would expire. But the former editors had heard of this strong-willed man up in the hills of New Hampshire and in one very quick luncheon meeting, Robb Sagendorph became the 11th editor of the Almanac.

Even though *Yankee Magazine* was his own "baby," as he called it, Mr. Sagendorph took perhaps greater pride in his role as "Abe Weatherwise", the preserver of this, the oldest publication in the U.S.A. still being published continuously. He quickly returned to the traditional format of the American almanac and with liberal doses of a tongue-in-cheek, humorous approach to life, the weather and the public, he became a well known "character" on the American scene. The Almanac prospered and now sells over two million copies each year all across the nation.

Mrs. John F. Kennedy honored Mr. Sagendorph by appointing him a member of the National Historic Trust; his home state of New Hampshire appointed him to the 1976 Bicentennial Commission; and the list of other honors is too numerous to mention. But closest to his heart after his vocation as a publisher was his loyalty to the Town of Dublin which he served as Selectman and Moderator for over 25 years. He preferred to concentrate on the smaller microcosm and to draw a generality from it. Thus, his strong "Americanism" was not predominately national in scope nor particularly vocal in method. Rather it was constructed from a series of other loyalties — loyalties to his family, to his friends, his employees, his fellow townsmen.

When you think of it, is that not exactly the way our forefathers gained their feeling for their new country? Robb Sagendorph's choice of an Independence Day celebration would be a country fair or a small town parade, not a rally in Washington. His approach would emphasize the importance of the smaller issues, the local problems which, if solved by understanding patient men, provide the basic fabric of underlying agreement and trust into which the great national issues can be woven. In a sense, the *Old Farmer's Almanac* became and now represents a part of that fabric — something you can *count* on year after year.

In February 1970, Mr. Sagendorph's book "America And Her Almanacs—Wit, Wisdom & Weather 1639-1970" was published. At the close of the final chapter he comments:

> "Life holds more meaning for me somehow when the past ties into the present. When this happens, one gains the assurance the present will tie into the future. Without this hope, preservation would hardly be worthwhile.
>
> Any future for American almanacs relates, almost exactly in my opinion, as to how well those who publish these accomplish this. It can be done, if there are those who have the will and energy to do it."

It is with these words in mind, as well as the tradition of all former editors, that we have produced this 179th edition of The Old Farmer's Almanac. Mr. Sagendorph had completed the left and right hand calendar pages (pgs. 24-47) before his illness but the remaining editorial portions must be laid at our feet. From the beginning, we had planned to publish a chapter of his book on American Almanacs (see page 126) and it was he who had purchased the tattered remains of Isaiah Thomas' 1763 publication of "The Letter from Jesus Christ" from a London bookseller (see page 66). The astronomical calculations were again prepared by Arthur Wood, the Farmer's Calendars by Benjamin Rice, the puzzles and charades by Judson Hale and the layout and design by Carl Kirkpatrick and Walter Richardson.

It is with love, affection and devotion that we dedicate this edition to the memory of Robb Sagendorph, confident that, in the sadness of this hour, he will live on in the pages of this, the oldest continuous publication in the U.S.A.

In these things, however, man can only propose. God is the true disposer. In this it is by our works and not by our words we would be judged. These we hope will sustain us in the humble, though proud, station we have long held, in the name of

Your Ob'd servant,

Robt. B. Thomas.

July 6, 1970

Last Winter's Weather

(Nov. 1969 — April 1970)

In the 1970 edition, Abe Weatherwise called for the winter of '69-'70 to be "its atrocious, fickle, unpredictable self". And so it was, particularly the unpredictable aspect of the winter weather conditions. For except in Denver, the average temperature was generally lower than normal whereas Old Abe had forecast normal to higher than normal temperatures. January subjected the entire U.S. east of the Mississippi to a drastic cold spell — in Burlington, Vt. the average temperature for the month was only 3.6° above zero Fahrenheit, — 12.6° below normal.

On the brighter side, however, Old Abe correctly forecast the white Christmas that brightened children's hearts across the country with a storm starting in some places on the 22nd and ending in upper Vermont with 5.8" of snow on the 28th, just in time to make the gifts of Christmas skis and sleds worthwhile. Also correctly forecast were the late March snowstorms which discouraged New Englanders, Pittsburghers, and Denverites who were hoping for spring.

Paul A. Gorman, Penn Central's new president, acknowledged that, during the last winter Penn Central had not been able to keep its service up to "satisfactory standards." He attributed this largely to the fact that weather conditions in the area served by the railroad were the worst of the current century. The Mass. Turnpike records for last winter show that there was a greater total accumulation of snow this year at all stations than the previous winter which was dominated by the two big Feb. storms.

Verifications of predictions are taken from the USWB monthly reports for the reporting stations used.

THE SOUTH

While the South experienced a much colder than normal winter (Jan. was 8.8° below the normal 44° at Atlanta), its rainfall patterns and amounts were predicted with 83% accuracy. The big storms of Dec. 7-8, Jan. 26 and Mar. 19 were all forecast right on the nose.

NEW ENGLAND

While Boston's winter weather averaged 30.08° in temperatnre and produced 60.3" of snowfall, it was by no means an average winter. December snows on the 14-15, 19 and 26th came right on the schednle so that 10" of snow was on the ground by Christmastime. Then the extraordinary January chill, averaging 9.2° below the normal of 27.0° made that month as miserable as possible. February was rather pleasant with higher than normal temperatures, lots of sunshine and only two small snow storms on the 15th and 28th of 4" or less. March came in like a lion and went out like a tiger, dropping 14.5" of snow in Boston between the 29-31. The OFA made a total of 58 forecasts of which 29 were "right on" and of the 5 major snowfalls Abe Weatherwise predicted 4 within a day of the event.

PACIFIC NORTHWEST

Our forecast was for warmer than normal temperatures and proved generally true. However, here the precipitation got fickle and turned out to be higher than expected. Of the 51 forecasts made, 36 or 70% were correct. The greatest rainfall occurred Dec. 11, Jan 12 and 22, Feb. 16 and Mar. 11-14.

MIDWEST

In the Midwest, the lower than average temperatures certainly changed the less than normal precipitation to come in the form of snowflakes. Chicago recorded a total snowfall of 56", with large storms Dec. 23-25, Jan. 13-14, Jan. 17, Feb. 8-9, aud Mar. 25-26. The OFA got the timing right — the big problem was that we called the last four as "rain".

THE GREAT PLAINS

The Plains States had it easy for the first part of the winter with above average temperatures in Nov.-Feb. — but they caught it later in March and April. Only 9.3 inches of snow fell on Denver before March 1; then 20.5" fell in that single month on that city. Old Abe struck out on this freak weather.

EASTERN STATES (EXC. NEW ENGLAND)

The unusual cold spell again turned rain into snow with 70" falling on Pittsburgh, Pa. As early as Nov. 13, 5.9" were dropping, and on Dec. 1, Dec. 23-26, and Mar. 22 & 29, over 4" fell to clog traffic. Again Abe's percentage on precipitation was respectable (67%) but the forecast was for rain, not snow.

Weather Forecast 1970-71

The verses in *italic type* (same as this) which run vertically down the middle of the Calendar Pages, cover the country as a whole for the calendar year of 1971. These are for the days indicated by the beginning captalized word and ending with the period. In addition, there follows herewith: 1) a prose summary of the Winter in general across the country from November, 1970 through April, 1971; and 2) a summary for the calendar year 1971 (January-December). These general forecasts are then broken down into six regional weather forecasts, both for the Winter (November, 1970-April, 1971, and the calendar year January-December, 1971). See pages 90-112.

As all of these forecasts are based, for verification purposes, at established U.S.W.B. Stations, the temperature will be about 5° higher for each 100 miles south of the U.S.W.B. Station location given in the above-mentioned summaries and 5° lower for each 100 miles north. For each 1,000 feet of altitude, reduce temperatures approximately 3° . . . read, with the colder temperatures, "snow" for "rain."

THE WINTER (Nov. 1970—Apr. 1971)

This winter will be cold, stormy and long with few breaks for thaws. November could start it all off with a snowstorm from Chicago to the East Coast, Nov. 10-13; if not snow, surely heavy rains. Early December (1-6) will give the East a snow covering, followed by more of the white stuff between the 10-15 of the month. The West Coast north of San Francisco will experience an abnormally high snowfall (35-41″) especially in January. Other storm periods where snow or sleet is expected throughout the U.S.A. would be New Year's Eve (Dec. 31); Jan. 10-15; Blizzard from the West starting Jan. 20 and continuing through Jan. 27; Feb. 8-10, 13-17, and 22-27; Mar. 2-4, 5-8, 20-22, 27-31; April 10-14, 19-23, 26-30. Expect a late spring throughout, with snow in the Rocky Mountain region even into May.

THE YEAR—Jan.-Dec. 1971

Average temperatures will be generally 2° colder across the country—both summer and winter. Also, there will be a wet spring and summer east of the Mississippi, but dryer in the far West. Hurricanes will lash New England Shores at the end of August and just after Labor Day and parts of the Atlantic Seaboard will be devastated by the same Labor Day Hurricane. The best month for vacations will be August.

ECLIPSES FOR THE YEAR 1971

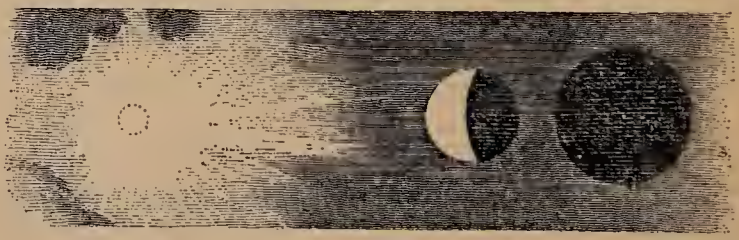
There will be four eclipses in 1971; two of the Sun and two of the Moon. Those of the Sun will be partial eclipses, while those of the Moon will both be total.

I. A Total Eclipse of the Moon, February 10, 1971. The beginning of the umbral phase will be visible in the eastern part of the Pacific Ocean, North and South America, the Atlantic Ocean, the Arctic Ocean, in the western part of Africa, in Europe, and along the north-west edge of Asia. The end of the umbral phase will be visible in the Pacific Ocean, in the eastern parts of Australia, in New Zealand, in the eastern parts of Asia, in the Arctic Ocean, in North and South America, and in the western part of the Atlantic Ocean. The umbral phase begins at 3.04 A.M. E.S.T. and ends at 4.27 A.M. E.S.T., while the penumbral phase begins at 2.53 A.M. E.S.T. and ends at 5.38 A.M. E.S.T. Maximum phase will occur at 3.45 A.M. E.S.T.

II. A Partial Eclipse of the Sun, February 25, 1971. The eclipse will be visible in Europe, in the north-western part of Asia, in the Atlantic Ocean and in the Arctic Ocean. It will not be visible at any time from any part of North America. At maximum phase, only 79% of the Sun's disk will be covered by the Moon.

III. A Partial Eclipse of the Sun, July 22, 1971. This will be a very minor eclipse, with less than 7% of the Sun being covered by the Moon when the eclipse is maximum. The eclipse will be visible in the very northernmost parts of Alaska, in the Arctic Ocean, in the northern part of the Pacific Ocean, and in the north-east part of Asia.

IV. A Total Eclipse of the Moon, August 6, 1971. The beginning of the umbral phase of this eclipse will be visible in eastern Africa, in eastern Europe, in Asia, in the western part of the Pacific Ocean, in Australia, in the Indian Ocean, and in the Antarctic. The end of the umbral phase will be visible in Africa, in the Atlantic Ocean, in the eastern part of South America, in Europe and Asia, in the western part of Australia, in the Indian Ocean and in the Antarctic. It will not be visible, at any time, from anywhere in North America.



TOTAL ECLIPSE, 1970

On March 7, 1970, the Eastern Seaboard of the United States was given a unique opportunity to observe a total lunar eclipse of the sun. Probably more astronomically informed people observed this eclipse than ever before and, by using complex refractor lenses, took excellent photographs of the solar corona in its halo-like appearance around the surface of the moon. Thousands upon thousands of amateur viewers heeded the advice of The U. S. Government Health agencies and watched the eclipse backwards through a cardboard box, the rear side of which (facing the sun) was perforated with a needle hole which projected an image of the movement of both sun and moon onto the front inner surface of the box as it was held over the viewer's head.

The total eclipse came at approximately 1:05 P.M. in Virginia and North Carolina. One of the curious phenomena of the eclipse was the visibility of so-called "shadow bands" (the moon's shadow (about one foot apart that raced over the darkened surface of the earth for as much as 2 - 3 minutes both before and after total eclipse. The eerie greyish blue color of the sky, the silent birds and in some places the black horizon were enough to convince many 20th century observers that our stone age ancestors must have had nerves of steel if they could survive the trauma of an unexplained phenomenon such as a total eclipse. No wonder someone had to invent an almanac!

The next total eclipse will be July 10, 1972 in Canada and June 30, 1973 in Africa—just in case you are traveling there without your almanac handy.

EARTH IN PERIHELION AND APHELION IN 1971

The Earth will be in Perihelion on January 4, distant from the Sun 91,400,000 miles. The Earth will be in Aphelion on July 4, distant from the Sun 94,510,000 miles.

Holidays, 1971

†Are recommended as "with pay" holidays for all commercial employees. (*) Quite generally observed. (**) State holidays only (***) Observed in some places though probably not holidays.

All dates also included (where room) on calendar pages 25-47.

Jan. 1 (*†) New Year's (all) **Fri.**
Jan. 8 (**) Battle New Orleans (La.)
Jan. 19 (**) Robert E. Lee's Birthday (South)
Jan. 26 (**) MacArthur (Ark.)
Jan. 30 (**) F.D.R.'s Day (Ky.)
Feb. 12 (*) Lincoln's Birthday (31 states) **Fri.**
Feb. 14 (***) Valentine's Day
Feb. 14 (**) Admission Day (Ariz.)
Feb. 15 (*†) George Washington's Birthday **NEW**
Feb. 15 (***) Susan B. Anthony
Feb. 23 (**) Mardi Gras (Ala., Fla., La.)
Mar 2 (**) Texas Ind. Day
Mar. 15 (**) Jackson Day (Tenn.)
Mar. 17 (**) Evacuation Day (Boston & Suffolk Co., Mass.)
Mar. 17 (**) St. Patrick's Day
Mar. 25 (**) Maryland Day
Mar. 26 (**) Kuhio Day (Haw.)
Mar. 29 (**) Seward's Day (Alas.)
Apr. 2 (**) Pascua Day (Fla.)
Apr. 9 (**) Good Friday (*Conn., Del., Fla., Haw., Ill., Ind., La., Minn., N.J., N.D., Tenn., Pa.)
Apr. 12 (**) Easter Monday (N.C.)
Apr. 12 (**) Halifax Day (N.C.)
Apr. 13 (**) Jefferson Day (Ala., Mo., Va.)
Apr. 14 (**) Pan. Am. (Fla.)
Apr. 19 (**) Patriots' Day (Me., Mass.)
Apr. 21 (**) San Jacinto (Tex.)
Apr. 22 (**) Okla. Day, Arbor Day. (Nebr.)
Apr. 26 (**) Fast Day (N.H.) **Mon.**
Apr. 26 (**) Memorial Day (Ala., Fla., Ga., Miss.)
Apr. 30 (*) Arbor Day (Utah)
May 4 (**) R.I. Indep. Day
May 9 (***) Mother's Day
May 10 (**) Mem. Day (N.&S.C.)
May 20 (**) Mecklenburg (N.C.)
May 31 (*†) Memorial Day (exc. 5 So. States) **NEW**
June 3 (**) Jefferson Davis Day (Ala., Ga., Ky., La., Miss., S.C., Tenn., Tex.)
June 11 (**) Kamehameha (Haw.)
June 14 (**) Flag Day (Pa.)
June 17 (**) Bunker Hill (Suffolk Co., Mass.) **Thurs.**
June 20 (**) West Virginia Day
June 20 (***) Father's Day
July 4 (*†) Independence (all) **Sun.**
July 13 (**) Forrest's Day (Tenn.)
July 24 (**) Pioneer Day (Utah)
Aug. 2 (**) Colorado Day
Aug. 9 (**) Victory (R.I.)
Aug. 14 (**) V.J. Day (Ark.)
Aug. 16 (**) Bennington, Vt. Battle
Aug. 30 (**) Huey Long (La.)
Sept. 6 (*†) Labor Day (all) **Mon.**
Sept. 9 (**) Admission Day (Calif.)
Sept. 12 (**) Defender's (Md.)
Sept. 16 (**) Cherokee (Okla.)
Sept. 17 (***) Citizenship Day
Sept. 24 (***) Am. Indian Day
Oct. 11 (*†) Columbus (all) **NEW**
Oct. 11 (**) Pulaski Day (Nebr.)
Oct. 18 (**) Alaska Day
Oct. 24 (***) U.N. Day
Oct. 25 (*†) Veterans' (all) **NEW**
Oct. 31 (**) Nevada Day
Nov. 1 (**) All Saint's Day (La.)
Nov. 4 (**) Will Rogers (Okla.)
Nov. 13 (***) Sadie Hawkins Day
Nov. 23 (**) Repudiation (Md.)
Nov. 25 (*†) Thanksgiving Day (all)
Dec. 10 (**) Wyoming Day
Dec. 15 (***) Bill of Rights Day
Dec. 21 (***) Forefathers' Day
Dec. 25 (*†) Christmas Day (all) **Sat.**

LONG HOLIDAY WEEKENDS TO BEGIN IN 1971

A bill signed by Pres. Johnson on June 28, 1968 goes into effect beginning January 1, 1971 when four major holidays will fall on Mondays each year to provide long weekends.

The new law applies only to Federal and District of Columbia employees, but most states are expected to follow suit. Thus Washington's Birthday will be observed on the 3rd Monday in February; Memorial Day on the last Monday in May; Columbus Day (now a Federal legal holiday) on the 2nd Monday in October, and Veterans' Day on the 4th Monday in October. Combine these four new 3-day weekends with Labor Day (Mon.) New Year's Day (Fri.) Independence Day (Sun. but undoubtedly will be a Monday holiday) and the customary 4-day break at Thanksgiving, and 1971 offers 8 long weekends. Not bad.

1970

JANUARY.

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FEBRUARY.

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MARCH.

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APRIL.

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JUNE.

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JULY.

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SEPTEMBER.

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OCTOBER.

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NOVEMBER.

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DECEMBER.

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1971

JANUARY.

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FEBRUARY.

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MARCH.

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APRIL.

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MAY.

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JUNE.

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JULY.

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AUGUST.

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SEPTEMBER.

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OCTOBER.

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NOVEMBER.

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DECEMBER.

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1972

JANUARY.

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FEBRUARY.

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MARCH.

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JUNE.

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AUGUST.

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SEPTEMBER.

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OCTOBER.

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NOVEMBER.

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5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	–	–
–	–	–	–	–	–	–

DECEMBER.

S	M	T	W	T	F	S
–	–	–	–	–	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	–	–	–	–	–	–

Introduction

STANDARD TIME IS USED THROUGHOUT THIS ALMANAC

Add 1 hr April 25, (deduct it Oct. 31) for Daylight Saving Time

Chronological Cycles for 1971.

Golden Number	15	Solar Cycle	20	Roman Indiction	9
Epact	4	Dominical Letter*	C	Year of Julian Period	6684

**The Dominical Letter is used instead of the usual "S" for "Sunday" by almanac makers for determining at a glance (a) the year of the almanac, (b) on what day of the week any day of the month will fall.*

Movable Feasts and Fasts for 1971.

Septuagesima Sun.	Feb. 7	Good Friday	Apr. 9	Whitsunday	May 30
Shrove Sunday	Feb. 21	Easter Sunday	Apr. 11	Trinity Sunday	June 6
Ash Wednesday	Feb. 24	Low Sunday	Apr. 18	Corpus Christi	June 10
1st Sun. in Lent	Feb. 28	Rogation Sun.	May 16	1st Sunday in Advent	Nov. 28
Palm Sunday	Apr. 4	Ascension Day	May 20		

THE SEASONS OF 1971

Winter (1970)	December 22	1:33 A.M. (Sun enters Capricornus)
Spring (1971)	March 21	1:38 A.M. (Sun enters Aries)
Summer	June 21	8:20 P.M. (Sun enters Cancer)
Fall	September 23	11:45 A.M. (Sun enters Libra)
Winter	December 22	7:24 A.M. (Sun enters Capricornus)

Names and Characters of the Principal Planets.

☉ ☼ ☺ ☿ The Sun.
● ☽ ☾ ☇ The Moon.
☿ Mercury.
♀ Venus.
⊕ The Earth.
♂ Mars.
♃ Jupiter.
♄ Saturn.
♅ or ♁ Uranus.
♆ Neptune.
♇ Pluto.

Names and Characters of the Aspects.

☌ Conjunction, or in the same degree.
□ Quadrature, 90 degrees.
☍ Opposition, or 180 degrees.
☊ Dragon's Head, or Ascending Node.
☋ Dragon's Tail, or Descending Node.

Calendar Page Explanations and Signs

On the right hand pages (25–47) you will find every now and again the symbols given above conjoined in groups of three to give you what is happening in the heavens. See Glossary, Page 125. Example: ☌ ♀ ♆ on Page 25, opposite Jan. 8 means Venus (♀) and Neptune (♆) are on that day in conjunction (☌), or nearest to each other.

Weather Forecasts

For the U.S.A. in general, see Page 19 and italics on pages 25–47; next to the Farmer's Calendars. For specific weather forecasts in eight different climatic areas, see pages 90–112.

Planting Tables

See Page 51. Usual planting dates as well as those *most favored by the moon* are given for most parts of the U.S.A. Favorable signs are also included. See Pages 24–46 for the days on which these occur. Also see Page 56.

Astrology Signs and Meanings

See Pages 56–59 for birth date superstitions as well as those pertaining to brush cutting, weaning, planting, marriage, etc.

Planets

See Pages 48–49. Which planet is shining so brightly for you? These pages will help you to know. Also, the configurations these planets are making with each other are given in the symbols on Pages 25–47. Astrologers as well as students of the varying strength of radio and television signals find these configurations useful.

Tides

See Pages 24–46 for the times of morning and evening high tides, Pages 25–47 for the heights of these tides. Page 84 gives the corrections needed for your locality.

Regional Sun, Moon, etc., Times

See Part III, page 90, for correcting the times (given for Boston only on pages 24–46) for your area. There are separate correction tables for six different areas —in one of which you will find yours: see pages 94–114.

Questions gladly answered free of charge if accompanied by self-addressed, stamped envelope mailed to: THE OLD FARMER'S ALMANAC, DUBLIN, N. H. 03444.

1971] JANUARY, First Month.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /
	1	23s.03	7	22 27	13	21 35	19	20 28	25	19 07
	2	22 59	8	22 20	14	21 25	20	20 16	26	18 53
	3	22 53	9	22 12	15	21 15	21	20 03	27	18 38
	4	22 47	10	22 03	16	21 04	22	19 50	28	18 22
	5	22 41	11	21 54	17	20 52	23	19 36	29	18 06
	6	22 35	12	21 45	18	20 41	24	19 22	30	17 50

☽ First Quarter, 3rd day, 11 h. 56 m., evening, W.
○ Full Moon, 11th day, 8 h. 21 m., morning, W.
☾ Last Quarter, 19th day, 1 h. 09 m., evening, W.
● New Moon, 26th day, 5 h. 56 m., evening, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS—PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	Key	☉ Sets h. m.	Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston, Morn h.	Full Sea, Boston, Eve. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	☽ Place	☽ Age
1	1	Fr.	7 13	O	4 22	C	9 09	12	1¾	2	10$^{A}_{M}$00	K	9$^{P}_{M}$40	G	PSC	4
2	2	Sa.	7 13	O	4 23	C	9 10	12	2½	3	10 23	J	10 56	I	PSC	5
3	3	C	7 13	O	4 24	C	9 11	11	3½	4	10 40	H	—	—	ARI	6
4	4	M.	7 13	O	4 25	C	9 12	11	4½	5	11 10	G	12$^{A}_{M}$10	L	ARI	7
5	5	Tu.	7 13	N	4 26	D	9 13	10	5½	6	11$^{A}_{M}$38	F	1 24	M	TAU	8
6	6	W.	7 13	N	4 27	D	9 14	10	6½	7	12$^{P}_{M}$09	D	2 37	C	TAU	10
7	7	Th.	7 13	N	4 28	D	9 15	9	7½	8	12 40	B	3 50	P	G'M	11
8	8	Fr.	7 13	N	4 29	D	9 16	9	8¼	9	1 35	B	4 57	P	G'M	12
9	9	Sa.	7 13	N	4 30	D	9 17	8	9¼	10	2 30	B	6 04	P	CAN	13
10	10	C	7 13	N	4 31	D	9 18	8	10	10¾	3 38	B	6 53	P	CAN	14
11	11	M.	7 12	N	4 32	D	9 20	8	11	11½	4 40	B	7 26	P	—	—
12	12	Tu.	7 12	N	4 33	D	9 21	7	11½	—	5 47	D	7 59	O	CAN	15
13	13	W.	7 12	N	4 34	D	9 22	7	0¼	0¼	6 52	E	8 27	M	LEO	16
14	14	Th.	7 11	N	4 35	D	9 24	7	0¾	1	7 54	F	8 49	L	LEO	17
15	15	Fr.	7 11	N	4 37	D	9 26	6	1½	1½	8 55	H	9 10	K	VIR	18
16	16	Sa.	7 10	N	4 38	D	9 28	6	2	2¼	9 55	I	9 29	J	VIR	19
17	17	C	7 10	N	4 40	D	9 30	6	2¾	3	10 58	J	9 49	H	VIR	20
18	18	M.	7 10	N	4 41	D	9 31	5	3½	3¾	12$^{P}_{M}$59	K	10 07	G	LIB	21
19	19	Tu.	7 09	N	4 42	D	9 33	5	4¼	4¾	—	—	10 28	F	LIB	22
20	20	W.	7 09	N	4 43	D	9 34	5	5	5½	1$^{A}_{N}$03	M	10 53	E	SCO	23
21	21	Th.	7 08	N	4 44	D	9 36	4	6	6½	2 12	N	11$^{A}_{M}$22	D	SCO	24
22	22	Fr.	7 08	N	4 46	D	9 38	4	6¾	7½	3 21	P	12$^{P}_{M}$03	B	SCO	25
23	23	Sa.	7 07	N	4 47	D	9 40	4	7¾	8½	4 28	P	12 54	B	SGR	26
24	24	C	7 06	N	4 48	D	9 42	4	8½	9¼	5 36	P	2 00	B	SGR	27
25	25	M.	7 05	N	4 49	D	9 44	3	9½	10	6 15	P	3 16	B	CAP	28
26	26	Tu.	7 04	M	4 51	E	9 47	3	10½	11	6 49	P	4 38	C	AQR	29
27	27	W.	7 03	M	4 52	E	9 49	3	11¼	11¾	7 21	N	6 00	E	AQR	1
28	28	Th.	7 02	M	4 53	E	9 51	3	0	—	8 00	L	7 21	G	PSC	2
29	29	Fr.	7 01	M	4 55	E	9 54	2	0½	1	8 25	K	8 39	H	PSC	3
30	30	Sa.	7 00	M	4 57	E	9 57	2	1½	1¾	8 49	I	9 55	J	PSC	4
31	31	C	6 59	M	4 58	E	9 59	2	2¼	2½	9$^{A}_{M}$14	G	11$^{P}_{M}$12	L	ARI	5

JANUARY hath 31 days. [1971

Deer started by a snowmobile pack
Run their losing race with unrestrained hounds,
While mountainside shadows drawing night back
Curtain the sight, but not the bloody sounds.

D. M.	D. W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	Fr.	Circumcision • ☾at ♌	*Snow*	"Breakfast—the best meal of the day." Common sense—after a long night—to break one's fast with plenty.
2	Sa.	♄ Ev'g Star • ☾ on Eq. Tides {10.0 10.3	*days is*	
3	C	2nd S. a. Chr. Tides {10.1 9.8	*cold as*	
4	M.	⊕ in Peri. • ☿♀♃ Tides {10.1 9.2	*blazes.*	As in my boyhood. Breakfast—a joy—a feast. Fruit to start (seldom orange juice), chosen from the bowl—apples, oranges, bananas—often plums, grapes, peaches. In season, strawberries, raspberries, blueberries—sugar and cream galore.
5	Tu.	TWELFTH NIGHT Take down Xmas greens	*For this*	
6	W.	Epiph. ☿♄☾ ☾ runs high {10.0 8.5	*whole*	
7	Th.	Latest Sunrises Dec. 30-Jan. 10 ☽ Stat. in R.A. {10.0 8.3	*week*	
8	Fr.	☿ Stat. in R.A. • ☿♀♆ • Hol. La.	*and one*	
9	Sa.	*Better slip with tongue than foot* Tides {10.1 8.4	*night bad*	Next, smooth, rich oatmeal, piping hot from simmering all night on the stove. Then hot muffins—corn bread, or toast made on the old-fashioned flat toaster. And mother's home-made jam—marmalade—a pitcher of milk.
10	C	1st S. a. Ep. Detar Chimneys	*storms*	
11	M.	The Full Cold Moon • Plough Monday {10.1 8.6	*you'll*	
12	Tu.	*Marriage without love, love without marriage* {10.0 —	*fight.*	
13	W.	Marry now until Sept. 5 [14th Fav. conc. fem. child]	*Red*	
14	Th.	St. Hilary coldest of year • ☾at ♉ • {8.7 9.7	*cheeks*	A special dish each day—Sunday: Nell's marvelous fish balls (*not* fish cakes—sodden and mortuary). Dropped in deep fat, spooned out gently, drained—dried — fluffy-brown — light as feathers. Saturday night's baked beans and home-made brown bread. Monday—dropped eggs on hash (relic of Sunday's roast). Tuesday: finnan haddie, broiled—laid on a platter—just enough hot milk and cream-baked potatoes. Wednesday: *broiled* liver and bacon. (Pig's liver; father was a country man.) Thursday: chipped beef in cream—the stable baked potato. Friday: scrambled eggs—bacon. Saturday—king of breakfasts—golden pancakes, well-buttered — dripping maple syrup. A boy's breakfast—best meal of the day.
15	Fr.	Dawn precedes sunrise} twilight to full, sunset} About 1.35 hours	*white*	
16	Sa.	Whales migrate • ☾ in Apo. • on Eq. {8.7 9.0	*beaks.*	
17	C	2nd a. Ep. [18 th ☿ Gr. El. W. 24°]	*Record*	
18	M.	♄ Stat. in R.A. • ♁ Stat. in R.A. • ☿♁☾	*temp.*	
19	Tu.	1961 Blizzard New England • Lee's B'day • Hol. So.	*& tide*	
20	W.	♀ Gr. El. W. 74° • Yr's. lowest Tide-7.5 (21st) A.M.	*both on*	
21	Th.	☿♂☾ • ☿♃☾ • Ψ☾ • ☾ rides low	*the*	
22	Fr.	☿♀☾ • Arhor D. Florida • Boston Fire 1847	*low side.*	
23	Sa.	[25 th ☿♀☾ • ☿♂♃]	*This storm*	
24	C	3rd a. Ep. • Churchill D. 1965	*originates*	
25	M.	Conv. of Paul • 1837 A red Aurora •	*in Arctic*	
26	Tu.	1679 Keel Laid of the Griffin-1st N.A.M. ship {10.9 9.5	*wastes.*	
27	W.	☿♂Ψ • Druid's New Year {11.2 10.0	*Now the*	
28	Th.	☾ in Peri. • ☾at ♌ 1949-73° Wash. D.C.	*thaw,*	
29	Fr.	☾ on Eq. 1921 The great olympic blowdown {10.4 11.8	*then a*	
30	Sa.	F.D.R.'s Day Hol. Ky. 1917 1st Jazz Record cut	*blizzard,*	
31	C	4th a. Ep. 19 days fog Sacra., Cal. 1958	*maw.*	

ASTRONOMICAL CALCULATIONS.

☉'s Declination	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /
	1	17s. 17	7	15 31	13	13 35	19	11 31	25	9 20
	2	17 00	8	15 12	14	13 15	20	11 09	26	8 58
	3	16 43	9	14 53	15	12 54	21	10 48	27	8 35
	4	16 25	10	14 34	16	12 34	22	10 26	28	8 13
	5	16 07	11	14 14	17	12 13	23	10 04		
	6	15 49	12	13 55	18	11 52	24	9 42		

☽ First Quarter, 2nd day, 9 h. 31 m., morning, E.
○ Full Moon, 10th day, 2 h. 42 m., morning, W.
☾ Last Quarter, 18th day, 7 h. 14 m., morning, W.
● New Moon, 25th day, 4 h. 49 m., morning, E.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	Key	☉ Sets h. m.	Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston. Morn h.	Full Sea, Boston. Eve. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	☽ Place	☽ Age
32	1	M.	6 58	M	4 59	E	10 01	2	3	3½	9$^{A}_{M}$57	F	—	—	ARI	6
33	2	Tu.	6 57	M	5 00	E	10 03	2	4	4½	10 26	O	0$^{A}_{M}$43	M	TAU	7
34	3	W.	6 56	M	5 01	E	10 05	2	5	5½	11 02	B	2 03	N	TAU	8
35	4	Th.	6 55	M	5 02	E	10 07	2	6	6¾	11$^{A}_{M}$41	B	3 06	P	G'M	9
36	5	Fr.	6 54	M	5 03	E	10 09	2	7	7¾	12$^{P}_{M}$31	B	4 08	P	G'M	10
37	6	Sa.	6 53	M	5 04	E	10 11	2	8	8¾	1 42	B	5 01	P	CAN	11
38	7	C	6 51	L	5 05	F	10 14	2	9	9¾	2 46	B	5 42	P	CAN	12
39	8	M.	6 50	L	5 06	F	10 16	2	10	10½	3 56	C	6 17	P	LEO	13
40	9	Tu.	6 49	L	5 08	F	10 19	1	10½	11	4 57	E	6 45	N	—	—
41	10	W.	6 48	L	5 10	F	10 22	1	11¼	11¾	6 01	F	7 11	M	LEO	14
42	11	Th.	6 46	L	5 11	F	10 25	1	—	0	7 02	G	7 31	K	VIR	15
43	12	Fr.	6 45	L	5 12	F	10 27	1	0¼	0½	8 02	H	7 51	J	VIR	16
44	13	Sa.	6 44	L	5 13	F	10 29	2	1	1¼	9 02	J	8 10	I	VIR	17
45	14	C	6 43	L	5 15	F	10 32	2	1½	1¾	10 03	K	8 28	H	LIB	18
46	15	M.	6 42	L	5 16	F	10 34	2	2¼	2½	11$^{P}_{M}$07	L	8 48	F	LIB	19
47	16	Tu.	6 40	L	5 17	F	10 37	2	2¾	3¼	—	—	9 12	E	LIB	20
48	17	W.	6 39	L	5 19	F	10 40	2	3½	4	12$^{A}_{M}$12	N	9 39	D	SCO	21
49	18	Th.	6 38	L	5 21	F	10 43	2	4¼	5	1 19	P	10 13	B	SCO	22
50	19	Fr.	6 36	L	5 22	F	10 46	2	5¼	6	2 27	P	10 56	B	SGR	23
51	20	Sa.	6 34	L	5 23	F	10 49	2	6¼	7	3 27	P	11$^{A}_{M}$53	B	SGR	24
52	21	C	6 32	K	5 24	G	10 52	2	7¼	8	4 19	P	1$^{P}_{M}$03	B	CAP	25
53	22	M.	6 30	K	5 25	G	10 55	2	8¼	8¾	4 54	P	2 21	B	CAP	26
54	23	Tu.	6 29	K	5 26	G	10 57	2	9	9¾	5 41	N	3 43	D	AQR	27
55	24	W.	6 27	K	5 27	G	11 00	2	10	10½	6 12	M	5 06	F	AQR	28
56	25	Th.	6 26	K	5 29	G	11 03	2	11	11½	6 41	K	6 26	G	PSC	0
57	26	Fr.	6 25	K	5 30	G	11 05	3	11¾	—	7 05	J	7 44	I	PSC	1
58	27	Sa.	6 23	K	5 31	G	11 08	3	0¼	0½	7 30	H	9 06	K	ARI	2
59	28	C	6 21	K	5 32	G	11 11	3	1	1½	7$^{A}_{M}$58	G	10$^{P}_{M}$24	L	ARI	3

FEBRUARY hath 28 days. [1971

Meadows of diamonds in the morning sun
Mark how God's day has early begun,
The procession to Lincoln's then G.W.'s B'day,
The first Bluebird, a Crocus, Spring's not far away.

D.M.	D.W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	M.	St. Bridget • Ground hog Day 2nd	*Meridional*	The good farmer knows how best to use his land—for pasture, orchard or wood lot; hay or grain, pumpkins or potatoes, or row crops. He understands the meaning of its slopes, depth of its soils, the feel of them. But much else known by the soil scientist would amaze him.
2	Tu.	Pur. Mary • ☌♄☾ • ☌♃♆ {10.3 9.0	*gale*	
3	W.	The Four Chaplains • ☾runs high {10.0 8.4	*with an*	
4	Th.	*Don't try to hunt two hares with one dog* Tides {9.7 8.0	*icy*	
5	Fr.	Beware of this unlucky day • Hartford fire 1864 {9.5 7.9	*tail.*	
6	Sa.	1815 1st U.S. steam R.R. chart. • {9.5 8.0	*You no*	
7	C	Sept. S. Don't marry until Low S. {9.5 8.2	*like cold*	
8	M.	1935 no more U.S. public lands {9.6 8.4	*or snow?*	In New Hampshire, as in other states, soil mapping units of The Soil Conservation Department have been listing and evaluating the kinds of soil for their best uses. Local offices will, on request, provide soil maps (if completed) of specified areas.
9	Tu.	Great U.S. snows 1741, 1969 {9.7 8.6	*Then*	
10	W.	The Full Snow Moon • Moon's total eclipse {9.7 8.8	*to the*	
11	Th.	☾at♍ • 1554 Jane Grey beheaded {9.7 —	*Tropics*	
12	Fr.	Lincoln's B'day ☾In Apo • ☾on Eq.	*go.*	
13	Sa.	[14th ☌☉☾] • 1635 Boston Latin Sch. est.	*Last*	The "interpretive maps" show soil limitations for 1) home-site locations, and septic tank sewage effluent disposal; wetland groupings, and relation of soils to surface runoff.
14	C	Sex. S. St. Val. Tides {9.1 9.0	*year*	
15	M.	WASH. B'Y. Susan B. Anthony b. {9.1 8.7	*not a*	
16	Tu.	Silver dollar legal 1878 • 1958 blizzard {9.0 8.8	*storm*	
17	W.	*Charms are nonsense nonsense charming* • ☾rides low	*in Feb.*	To the soil scientist the kinds of plant life tell him something of the soil beneath, but to make a true survey, he digs a small pit or uses an auger to examine road cuts or holes. He observes the texture of the soil; the structure; the slope of land; the amount of rockiness; the degree of erosion.
18	Th.	Auld Deer worst of year ☌♆☾ • ☌♃☾	*These*	
19	Fr.	Ev'g. star • ☌♂☾ • 1945 Iwo Jima	*two blizz-*	
20	Sa.	Year's lowest A.M. tides 7.5 on Jan. 21 & Feb. 19	*ards enough*	
21	C	Shrove S. • ☌♀☾ Tides {9.4 8.1	*for both*	
22	M.	George Washington born this day Tides {9.9 8.7	*years*	
23	Tu.	Shrove Tu. • Mardi Gras {10.4 9.4	*instead.*	
24	W.	Ash W. • Matthias Apostle ☾at♌	*Snow*	In New Hampshire alone there are more than 100 soil types. The best uses of each may vary widely. Never before have we had access to the special knowledge of the soil scientist. In town planning or zoning—or to the builder—such knowledge is invaluable.
25	Th.	Sun part. eclipse ☾In Perl. [26th ☾on Eq.]	*fences*	
26	Fr.	Year 1391 begins Mohammedan era •	*buried. Town*	
27	Sa.	*"For a short lent, borrow money to be repaid at Easter"*	*Fathers*	
28	C	1st S.L. • G.O.P. began 1854	*worried.*	

The back of winter is now broken—expect spring the week after the town meeting day.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.

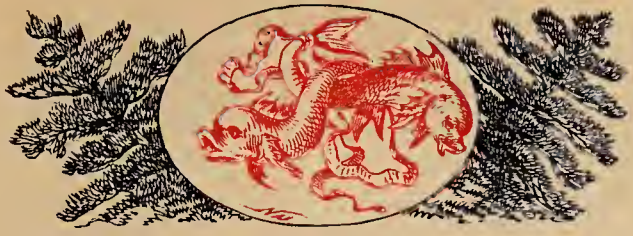
Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /
1	7s. 50	7	5 32	13	3 11	19	0 49	25	1 33
2	7 27	8	5 09	14	2 48	20	0 25	26	1 56
3	7 04	9	4 45	15	2 24	21	0s.02	27	2 20
4	6 41	10	4 22	16	2 00	22	0N.22	28	2 44
5	6 18	11	3 58	17	1 37	23	0 46	29	3 07
6	5 55	12	3 36	18	1 13	24	1 09	30	3 31

☽ First Quarter, 3rd day, 9 h. 02 m., evening, W.
○ Full Moon, 11th day, 9 h. 34 m., evening, E.
☾ Last Quarter 19th day, 9 h. 31 m., evening, E.
● New Moon, 26th day, 2 h. 24 m., evening, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS—PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	Key	☉ Sets h. m.	Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston. Morn h.	Full Sea, Boston. Eve. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	☽ Place	☽ Age
60	1	M.	6 20	K	5 34	G	11 14	3	1¾	2¼	8$^{A}_{M}$27	E	11$^{P}_{M}$42	N	TAU	4
61	2	Tu.	6 18	K	5 35	G	11 17	4	2¾	3¼	9 03	D	—	–	TAU	5
62	3	W.	6 17	K	5 37	G	11 20	4	3½	4¼	9 45	B	0$^{A}_{M}$55	P	G'M	6
63	4	Th.	6 15	K	5 38	G	11 23	4	4½	5¼	10 33	B	2 01	P	G'M	8
64	5	Fr.	6 13	J	5 39	H	11 26	4	5½	6½	11$^{A}_{M}$34	B	2 57	P	CAN	9
65	6	Sa.	6 12	J	5 41	H	11 29	5	6¾	7½	12$^{P}_{M}$39	B	3 42	P	CAN	10
66	7	C	6 10	J	5 42	H	11 32	5	7¾	8½	1 41	B	4 19	P	LEO	11
67	8	M.	6 08	J	5 43	H	11 35	5	8¾	9¼	2 46	D	4 50	O	LEO	12
68	9	Tu	6 07	J	5 44	H	11 37	5	9½	10	3 52	F	5 16	M	LEO	13
69	10	W.	6 05	J	5 45	H	11 40	6	10¼	10¾	4 54	G	5 23	L	VIR	14
70	11	Th.	6 03	J	5 46	H	11 43	6	11	11¼	5 54	H	5 57	K	—	—
71	12	Fr.	6 01	J	5 47	H	11 46	6	11½	11¾	6 54	I	6 16	I	VIR	15
72	13	Sa.	6 00	J	5 48	H	11 48	6	—	0	7 55	K	6 34	H	LIB	16
73	14	C	5 58	J	5 49	H	11 51	7	0½	0¾	8 58	L	6 54	G	LIB	17
74	15	M.	5 57	J	5 51	H	11 54	7	1	1¼	10 03	M	7 16	F	LIB	18
75	16	Tu.	5 55	J	5 52	I	11 57	7	1½	2	11$^{P}_{M}$08	N	7 41	E	SCO	19
76	17	W.	5 53	I	5 53	I	12 00	7	2¼	2¾	—	–	8 13	C	SCO	20
77	18	Th.	5 51	I	5 54	I	12 03	8	3	3½	12$^{A}_{M}$15	P	8 52	B	SGR	21
78	19	Fr.	5 50	I	5 55	I	12 05	8	3¾	4½	1 15	P	9 42	B	SGR	22
79	20	Sa.	5 48	I	5 56	I	12 08	8	4¾	5½	2 09	P	10 46	B	CAP	23
80	21	C	5 46	I	5 57	I	12 11	9	5¾	6½	2 57	P	11$^{A}_{M}$57	B	CAP	24
81	22	M.	5 45	I	5 59	I	12 14	9	6¾	7½	3 36	P	1$^{P}_{M}$15	C	AQR	25
82	23	Tu.	5 43	I	6 00	I	12 17	9	7¾	8½	4 09	M	2 34	E	AQR	26
83	24	W.	5 41	I	6 01	I	12 20	10	8¾	9¼	4 37	L	3 54	G	PSC	27
84	25	Th.	5 39	I	6 02	I	12 23	10	9½	10	5 02	K	5 14	H	PSC	28
85	26	Fr.	5 37	I	6 03	J	12 26	10	10½	11	5 29	I	6 34	J	PSC	0
86	27	Sa.	5 35	H	6 04	J	12 29	10	11½	11¾	5 55	G	7 56	L	ARI	1
87	28	C	5 34	H	6 05	J	12 31	11	—	0¼	6 24	F	9 16	M	ARI	2
88	29	M.	5 32	H	6 06	J	12 34	11	0½	1	6 58	D	10 35	O	TAU	3
89	30	Tu.	5 31	H	6 08	J	12 37	11	1½	2	7 38	B	11$^{P}_{M}$46	P	TAU	4
90	31	W.	5 30	H	6 09	J	12 39	12	2¼	3	8$^{A}_{M}$27	B	—	–	G'M	5

MARCH hath 31 days. [1971



Zero or lower in the bush at night — seventy at noon,
Maple roots contract, then expand. Sap flows
To drip, drop by drop, into buckets, then hose,
The fires blaze, syrup's on tap, alas it's all over too soon.

D. M.	D. W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓
1	M.	St. David • 1961 Peace Corps est. {11.2 10.2	*Wind*
2	Tu.	♂♄☾ • Hol. Tex. • 1932 Lindbergh baby kidnap'd.	*chill*
3	W.	Ember days 3, 5 and 6 ☾runs high Tides {10.4 8.7	*tables*
4	Th.	*Laws like cobwebs catch small flies* Tides {9.3 8.2	*say to*
5	Fr.	♆Stat. in R.A. • Lucy Larcom B. 1824 {9.4 7.8	*wear*
6	Sa.	♂☿☉ Sup. • ☿Ev'g. star {9.1 7.8	*sables.*
7	C	2nd S. L. Whalley & Goffe-1661 {9.0 7.9	*Tradi-*
8	M	Russ. Rev. beg. St. Pete. 1917 {9.1 8.2	*tional storm*
9	Tu.	Maple sugar season here • ☾at♉ • {9.3 8.6	*Town*
10	W.	Nassau Hall, Princeton bt. 1855 • Boston fire 1893	*Meeting*
11	Th.	The Full Worm Moon • ☾in Apo. Tides {9.4 9.1	*Day*
12	Fr.	Saint Gregory • ☾on Eq. Tides {9.4 9.3	*brings*
13	Sa.	♂☉☾ • B.C. 4 Joseph saw eclipse of moon {— 9.4	*rain*
14	C	3rd S. L. • 1812 First U.S. war bonds	*& the*
15	M.	Ides begin. Beware of Old Colind • Hol. Tenn. {9.5 9.0	*snow*
16	Tu.	[17th ♂♆☾ • ☾rides low] {9.4 8.7	*goes away.*
17	W.	S. Pat. Day [18th ♂♃☾ • ☍☿☉]	*Torna-*
18	Th.	[20th ♂♂☾] [17th day equals nite]	*does, gales,*
19	Fr.	Saint Joseph • Swallows ret. Capistrano {9.1 7.8	*floods*
20	Sa.	[21st. Spring Begins, 1:38 A.M.]	*at best*
21	C	4th S. L. • The Equinox {9.2 8.0	*hit the*
22	M.	Earliest poss. Easter Day • 1936 flood {9.5 8.5	*South &*
23	Tu.	♃Stat. in R.A. • ♂♀☾ • ☾at♌	*Midwest.*
24	W.	*Keep thy shop and thy shop will keep thee* {10.4 10.0	*Easterly*
25	Th.	Annunc Lady Day • ☾on Eq. {10.8 10.8	*gales with*
26	Fr.	Rob't Frost B. 1875 • Kuhio D. Hawaii ☾in Peri	*rains,*
27	Sa.	1513-Fla. discovr'd. • ♂☿☾ • Tides {11.1 11.7	*high*
28	C	Pas. S. Ike d. 1969 Tides {— 10.9	*tides,*
29	M.	♂♄☾ • ☾runs high Hol. Alas. {11.7 10.5	*threaten*
30	Tu.	1867 U.S. bot Alaska from Russia {11.4 9.9	*coastal*
31	W.	☿Gr. El. E. 19° • Cold war beg. 1948 {10.9 9.2	*plains.*

Farmer's Calendar.

Town meetings are as old, almost, as man himself. In their tribal gatherings, primitive peoples settled their differences and made laws. Early Rome had town meetings. Today, as always, town meeting is the most democratic form of assembly.

At town meeting, voters ballot on the articles presented in the town warrant. An article is a request presented for the town's approval. Passage of articles is the town's warrant for procedures in the coming year.

Behind town meeting lies all the machinery of town government. What is the town government? At the top it may be three selectmen, a town manager or a mayor (if the town fancies itself a city). Functions of the town are relegated to proper departments or other bodies, which may be: Police, Fire, Sewer, Highway, School, Tax, etc. Committees: Playground, Library, Park, Cemetery. Trustees can be for funds, library, cemetery, or any branch of the town where funds are specially allocated. The Budget Committee and the Planning Board are most important for what the town will spend and what direction it will take in matters of real estate and expansion.

Chief Officers of the town are usually the Selectmen, Treasurer, Town Clerk, Department Heads, and the Justice. Town meeting without town government would be meaningless.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.	° ′	Days.	° ′	Days.	° ′	Days.	° ′	Days.	° ′	Days.	° ′
	1	4N. 17	7	6 35	13	8 48	19	10 57	25	12 58		
	2	4 40	8	6 57	14	9 10	20	11 17	26	13 18		
	3	5 03	9	7 20	15	9 32	21	11 38	27	13 37		
	4	5 26	10	7 42	16	9 54	22	11 58	28	13 57		
	5	5 49	11	8 04	17	10 14	23	12 19	29	14 15		
	6	6 12	12	8 26	18	10 36	24	12 39	30	14 34		

☽ First Quarter, 2nd day, 10 h. 46 m., morning, E.
○ Full Moon, 10th day, 3 h. 11 m., evening, W.
☾ Last Quarter, 18th day, 7 h. 58 m., morning, W.
● New Moon, 24th day, 11 h. 02 m., evening, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	Key	☉ Sets h. m.	Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston. Morn h.	Full Sea, Boston. Eve. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	☽ Place	☽ Age
91	1	Th.	5 28	H	6 10	J	12 42	12	3	3¾	9$^{A}_{M}$26	B	12$^{A}_{M}$48	P	CAN	6
92	2	Fr.	5 26	H	6 11	J	12 45	12	4	5	10 30	B	1 39	P	CAN	7
93	3	Sa.	5 24	H	6 12	J	12 48	13	5¼	6	11 35	B	2 09	P	CAN	8
94	4	C	5 23	H	6 13	J	12 50	13	6¼	7	12$^{P}_{M}$40	D	2 53	O	LEO	9
95	5	M.	5 21	H	6 14	J	12 53	13	7¼	8	1 45	E	3 19	M	LEO	10
96	6	Tu.	5 19	H	6 15	K	12 56	13	8¼	8¾	2 46	F	3 42	L	VIR	11
97	7	W.	5 17	G	6 16	K	12 59	14	9	9½	3 47	H	4 03	K	VIR	12
98	8	Th.	5 15	G	6 17	K	13 02	14	9¾	10	4 47	I	4 22	J	VIR	13
99	9	Fr.	5 13	G	6 18	K	13 05	15	10½	10½	5 47	J	4 41	H	LIB	14
100	10	Sa.	5 12	G	6 19	K	13 07	15	11	11¼	6 49	K	5 00	G	—	—
101	11	C	5 10	G	6 20	K	13 10	15	11½	11¾	7 53	M	5 22	F	LIB	15
102	12	M.	5 09	G	6 22	K	13 13	15	—	0¼	9 00	N	5 46	E	SCO	16
103	13	Tu.	5 07	G	6 23	K	13 16	15	0½	1	10 06	P	6 18	D	SCO	17
104	14	W.	5 06	G	6 25	K	13 19	16	1	1½	11$^{P}_{M}$09	P	6 53	B	SCO	18
105	15	Th.	5 04	G	6 26	K	13 22	16	1¾	2¼	—	—	7 40	B	SGR	19
106	16	Fr.	5 02	G	6 27	K	13 25	16	2½	3	12$^{A}_{M}$05	P	8 37	B	SGR	20
107	17	Sa.	5 00	G	6 28	K	13 28	17	3½	4	12 53	P	9 46	B	CAP	21
108	18	C	4 58	G	6 29	K	13 31	17	4¼	5	1 34	P	10$^{A}_{M}$59	B	CAP	22
109	19	M.	4 57	G	6 30	L	13 33	17	5¼	6	2 07	N	12$^{P}_{M}$14	D	AQR	23
110	20	Tu.	4 55	F	6 31	L	13 36	17	6½	7	2 36	M	1 32	F	AQR	25
111	21	W.	4 54	F	6 32	L	13 38	17	7½	8	3 03	K	2 49	G	PSC	26
112	22	Th.	4 53	F	6 34	L	13 41	18	8½	8¾	3 26	J	4 06	I	PSC	27
113	23	Fr.	4 51	F	6 35	L	13 44	18	9¼	9¾	3 53	H	5 24	K	ARI	28
114	24	Sa.	4 50	F	6 36	L	13 46	18	10¼	10½	4 20	G	6 46	L	ARI	29
115	25	C	4 48	F	6 37	L	13 49	18	11	11¼	4 52	E	8 06	N	TAU	0
116	26	M.	4 46	F	6 38	L	13 52	18	—	0	5 29	D	9 24	P	TAU	1
117	27	Tu.	4 45	F	6 39	L	13 54	18	0¼	0¾	6 16	B	10 29	P	G'M	2
118	28	W.	4 43	F	6 40	L	13 57	18	1	1½	7 11	B	11$^{P}_{M}$26	P	G'M	3
119	29	Th.	4 42	F	6 41	L	13 59	18	2	2½	8 13	B	—	—	CAN	4
120	30	Fr.	4 41	F	6 42	L	14 01	19	2¾	3½	9$^{A}_{M}$22	B	12$^{A}_{M}$14	P	CAN	6

APRIL hath 30 days. [1971

Whoever, I wonder, ever called this month decent,
Cold, then hot, rain, snow, break every precedent.
Rubbers and raincoat, or shirtsleeves — thanks a lot,
I'll take summer, winter or fall, not this witch's pot.

D.M.	D.W.	Dates, Feasts, Fasts, Aspects, Tide Heights	*Weather* ↓
1	Th.	All Fools Day • Volce of the Turtle	*Rain togs*
2	Fr.	☌☉ • Hol. Fla. • U.S. mint est. 1792	*the style*
3	Sa.	Evening Star • ☿ Stat. In R.A. {9.1 7.9	*for these*
4	C	Palm S. Geese fly north Tides {8.8 7.9	*cold*
5	M.	Cain born Abel slain • ☾ at ♌ Tides {8.7 8.1	*fogs.*
6	Tu.	Blue herons are back • 1957 last trolley N.Y.C.	*Along*
7	W.	[8th ☾ in Apo. • ☾ on Eq.] {8.9 8.8	*came a*
8	Th.	[10th The Full Pink Moon • ☌☉☾]	*tornado,*
9	Fr.	Good Friday Tides {9.1 9.4	*blew over*
10	Sa.	Passover-Pesach, 1st Tides {9.1 9.6	*the*
11	C	Easter S. • Peepers peeping {9.1 9.7	*gazebo.*
12	M.	Easter Monday • Hol. N.C. Tides {— 9.0	*Just one*
13	Tu.	☾rides low Jefferson day. Ala, Mo, Va. {9.7 8.8	*sunny*
14	W.	☌♆☾ • ☌♌ Pan Am. Hol. Fla. {9.7 8.6	*day'd*
15	Th.	Canada geese nearing Canada Tides {9.6 8.4	*make us*
16	Fr.	[18th-o.k. to marry until Rog. Sun.] Tides {9.5 8.2	*happy*
17	Sa.	Maple syrup season over • ☌☌☾ Tides {9.4 8.2	*and*
18	C	Low Sunday • Tides {9.4 8.3	*gay.*
19	M.	Patriots' Day ☌☿☉ Inf. • ☾ at ♌	*Sheep*
20	Tu.	1902. Curies Isolate radium • "Cuckoo" day {9.6 8.2	*storms*
21	W.	Quail saved Israelites • Hol. Tex. {9.8 9.9	*they say*
22	Th.	☿♀☾ • ☾ on Eq. • Hol. Okla. Nebr. {10.2 10.6	*from*
23	Fr.	St. George • ☾ In Perl {10.4 11.2	*Cape Cod*
24	Sa.	D.S.T. begins tomorrow Set clocks ahead 1 hr.	*to*
25	C	2nd a. E. Latest poss. Easter Day	*Cape May.*
26	M.	☌♄☾ • ☾ Runs high • Fast Day Hol. N.H.	*May-*
27	Tu.	[26th Hol. Ala.] [Fla. Ga. Miss.] {11.6 10.0	*flowers can get*
28	W.	Red trilllum blooms (Mass.) • Mars cone.	*along with-*
29	Th.	[Kentucky Derby Virginia Goldcup May 1st]	*out these*
30	Fr.	National Arbor day • Tides {10.1 8.6	*showers.*

Farmer's Calendar.

Of all our cities, staid old Boston has been the least stayed. It has continuously overflowed its boundaries. In 1856 it pulled down its hills (leaving the stub of Beacon—the Capitol hill) to fill in Back Bay and create one of the world's grand avenues and proudest residences.

1872 saw The Great Fire—a disaster—a blessing.

Sadly, its fine old opera house was razed, but the Museum of Fine Arts was raised, and more recently, the Prudential Plaza with its Memorial Auditorium, hotel and shopping mall. Now in full swing plans for a new Boston. Gone the jungle of Scollay Square, now the new Civic and Government Center.

But gone, many a venerable, worthy building. Swing mindless ball—shriek old crane. Fashion your rubble. Who would have thought how lovely these old stones, how gently, how lovingly wrought these slender rails?

Yet Boston, wiser than it knows, perhaps, has kept most of its historic sites: the Old North Church, Old South, Trinity, the Granary Burying-Ground, Bunker Hill with its great shaft, the proud gold-domed Capitol, Faneuil Hall and the homely, generous Common (everyman's plot). These with each purple pane and wopsy brick and old brown front on Beacon Hill are its hallmark, its stamp of quality, forever Boston.

"Spring forward–fall back" reminds you to set clocks ahead 1 hr. in spring–back 1 hr. in Oct.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.

Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /
1	14N.52	7	16 38	13	18 13	19	19 37	25	20 50		
2	15 11	8	16 54	14	18 28	20	19 50	26	21 02		
3	15 29	9	17 11	15	18 43	21	20 03	27	21 11		
4	15 46	10	17 27	16	18 57	22	20 15	28	21 21		
5	16 04	11	17 43	17	19 11	23	20 27	29	21 31		
6	16 21	12	17 58	18	19 24	24	20 39	30	21 40		

☽ First Quarter, 2nd day, 2 h. 35 m., morning, W.
○ Full Moon, 10th day, 6 h. 24 m., morning, W.
☾ Last Quarter, 17th day, 3 h. 16 m., evening, W.
● New Moon, 24th day, 7 h. 32 m., morning, E.
☽ First Quarter, 30th day, 7 h. 43 m., evening, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	Key	☉ Sets h. m.	Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston. Morn h.	Full Sea, Boston. Eve. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	☽ Place	☽ Age
121	1	Sa.	4 39	F	6 43	L	14 04	19	3¾	4½	10$^{A}_{M}$27	C	12$^{A}_{M}$51	P	LEO	7
122	2	C	4 38	F	6 45	L	14 07	19	4¾	5½	11 34	E	1 20	N	LEO	8
123	3	M.	4 37	F	6 46	M	14 09	19	5½	6¼	12$^{P}_{M}$37	F	1 46	L	VIR	9
124	4	Tu.	4 36	E	6 47	M	14 11	19	6½	7¼	1 38	G	2 07	K	VIR	10
125	5	W.	4 35	E	6 48	M	14 13	19	7½	8	2 38	H	2 28	J	VIR	11
126	6	Th.	4 33	E	6 49	M	14 16	19	8½	8¾	3 38	J	2 46	I	LIB	12
127	7	Fr.	4 32	E	6 50	M	14 18	19	9	9½	4 40	J	3 05	H	LIB	13
128	8	Sa.	4 31	E	6 51	M	14 20	19	9¾	10	5 44	L	3 26	G	LIB	14
129	9	C	4 30	E	6 52	M	14 22	19	10½	10¾	6 50	M	3 50	E	SCO	15
130	10	M.	4 29	E	6 53	M	14 24	19	11¼	11¼	7 56	O	4 18	D	—	—
131	11	Tu.	4 27	E	6 54	M	14 27	19	11¾	—	9 01	P	4 54	B	SCO	16
132	12	W.	4 26	E	6 55	M	14 29	19	0	0½	10 01	P	5 38	B	SGR	17
133	13	Th.	4 25	E	6 56	M	14 31	19	0½	1¼	10 50	P	6 33	B	SGR	18
134	14	Fr.	4 24	E	6 57	M	14 33	19	1½	2	11$^{P}_{M}$33	P	7 39	B	CAP	19
135	15	Sa.	4 23	E	6 58	M	14 35	19	2¼	3	—	—	8 49	B	CAP	20
136	16	C	4 22	E	6 59	N	14 37	19	3	3¾	12$^{A}_{M}$07	N	10 04	D	AQR	21
137	17	M.	4 21	D	7 00	N	14 39	19	4	4¾	12 38	M	11$^{A}_{M}$19	F	AQR	22
138	18	Tu.	4 20	D	7 01	N	14 41	19	5	5½	1 05	L	12$^{P}_{M}$34	G	PSC	23
139	19	W.	4 19	D	7 01	N	14 42	19	6	6½	1 28	J	1 48	H	PSC	24
140	20	Th.	4 18	D	7 02	N	14 44	19	7	7½	1 53	I	3 03	J	ARI	25
141	21	Fr.	4 17	D	7 03	N	14 46	19	8	8½	2 20	G	4 28	L	ARI	26
142	22	Sa.	4 16	D	7 04	N	14 48	19	9	9¼	2 42	F	5 39	M	ARI	27
143	23	C	4 15	D	7 05	N	14 50	19	10	10¼	3 21	D	6 59	O	TAU	28
144	24	M.	4 15	D	7 07	N	14 52	19	10¾	11	4 03	B	8 10	P	TAU	29
145	25	Tu.	4 14	D	7 08	N	14 52	19	11½	11¾	4 55	B	9 13	P	G'M	1
146	26	W.	4 13	D	7 09	N	14 55	19	—	0½	5 57	B	10 04	P	CAN	2
147	27	Th.	4 13	D	7 10	N	14 57	19	0¾	1¼	7 04	B	10 45	P	CAN	3
148	28	Fr.	4 12	D	7 11	N	14 59	19	1½	2	8 11	B	11 19	N	LEO	4
149	29	Sa.	4 12	D	7 12	N	15 00	19	2¼	3	9 20	D	11$^{P}_{M}$47	M	LEO	5
150	30	C	4 11	D	7 12	N	15 01	18	3¼	3¾	10 24	F	—	—	LEO	6
151	31	M.	4 10	D	7 13	N	15 03	18	4	4¾	11$^{A}_{M}$27	G	12$^{A}_{M}$10	L	VIR	7

MAY hath 31 days. [1971

Spring never comes at all — after several half tries
Leaves us to swelter and fight the black flies.
Instead blossom festivals float in from the west,
White, yellow, blue (apple pink are the best).

D. M.	D. W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓
1	Sa.	Philip & James • Law Day {9.5 8.8	*Fourth*
2	C	3rd a. E. ☾at ♉ ☿ Stat. in R.A.	*of July*
3	M.	Invention of Cross • 1851 Great S.F. fire {8.7 8.2	*peas*
4	Tu.	Blossoms blooming • Holiday Rhode Isl. Tides {8.5 8.4	*go in*
5	W.	Mohamet born 570 A.D. • ☾ in Apo. ☾ on Eq.	*& freeze.*
6	Th.	[4th Moses on Sinai] • 1634 Beacon set on Beacon Hill	*Hike*
7	Fr.	♂☉☾ • Mother's day made 2nd Sun. • {8.6 9.8	*or bike*
8	Sa.	Germans surr. 1945 Tides {8.7 9.6	*while*
9	C	4th a. E. • Mother's Day {8.8 9.8	*its*
10	M.	The Full Flower Moon • ☾ rides low • Hol. Cars.	*still*
11	Tu.	Don't marry May 12-31 ♂♆☾ • ♂♃☾	*Spring-*
12	W.	The Three Chilly Saints } 12-14 Tides {10.0 8.7	*like.*
13	Th.	Most walrus calves born • Jamestown fd. 1607 {10.0 8.7	*Get*
14	Fr.	[15th Armed Forces Day] Tides {10.0 8.6	*thee*
15	Sa.	St. Torquatus olive tree Cadiz always blooms this day	*hinter*
16	C	Rogation S. ♂♂☾ {9.8 8.8	*out of*
17	M.	♂♄☉ • ☿ Gr. El. W. 26° • ☾at ♉	*dogwood*
18	Tu.	1904-West. Un. cut off wires to pool rooms {9.6 9.4	*winter.*
19	W.	[16th-Don't marry until Trinity S.] ☾ on Eq. {9.6 9.9	*Still*
20	Th.	Asc. D. • ♂♃♆ • Hol. N.C.	*coolish,*
21	Fr.	☾ in Peri. [22nd ♂♀☾ • ♂☿☾]	*mulish &*
22	Sa.	[23rd ♂♃☉ • ♂♆☉]	*droolish.*
23	C	☾ runs high • ♃ Ev'g. star • {9.9 11.4	*Explodes*
24	M.	♆ Evening star • Brooklyn Brdg. op. 1883 {9.8 11.5	*with*
25	Tu.	*Well done better than well said* • Tides {9.7 11.8	*hail*
26	W.	1868. Pres. Johnson unimpeached Tides {— 9.5	*stones*
27	Th.	"Pink lady slippers bloom" • Tides {10.9 9.2	*the*
28	Fr.	Swallows, warblers, sparrows around Tides {10.5 8.9	*size*
29	Sa.	[Feast of Weeks, Shebuoth-30th]	*of*
30	C	Whit. S. • Pent. • ☾at ♉	
31	M.	Memorial Day {9.0 8.4	*chicken bones.*

Farmer's Calendar.

The Monadnock region of southern New Hampshire and the Springfield area in Massachusetts were once the great beef cattle areas of the east—the market and slaughter house in Brighton, Mass.—the end product "salt beef from Boston."

In 1735 the Proprietors of Groton Gore (Groton, Mass.) granted its citizens rights for haying and grazing in the Monadnock region. In spring cattle were pastured on Monadnock and in the nearby Wapac range. From here and Springfield, cattle by thousands were driven to Brighton. Perhaps nowhere but in town histories—as Lehtinen's History of Jaffrey, N. H.—is the story recorded.

Drovers—cattle drivers—were the Yankee version of the western cowboy, "swaggering, homespun clad giants, full of strong oaths." Schools closed when they drove the cattle past—a thousand head lowing and bellowing.

Other cattle characters were the traders in high felt hats—and the cattle baron who controlled the beef market in Boston—it was like being king of Wall Street. Perhaps this is "the baron's" picture: "Cattle after cattle went by until at last a wagon with an old bearded man, sober-faced and silent. He is too rich and full of thought to have a good time like the others."

Goodbye old baron and drovers. We shall not look upon your like again.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /
	1	21 N. 58	7	22 41	13	23 11	19	23 25	25	23 25		
	2	22 06	8	22 47	14	23 14	20	23 26	26	23 23		
	3	22 14	9	22 53	15	23 17	21	23 27	27	23 21		
	4	22 21	10	22 58	16	23 20	22	23 27	28	23 19		
	5	22 28	11	23 02	17	23 22	23	23 26	29	23 16		
	6	22 35	12	23 07	18	23 24	24	23 26	30	23 13		

○ Full Moon, 8th day, 7 h. 04 m., evening, E.
☾ Last Quarter, 15th day, 8 h. 25 m., evening, E.
● New Moon, 22nd day, 4 h. 58 m., evening, W.
☽ First Quarter, 30th day, 1 h. 12 m., evening, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS—PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	Key	☉ Sets h. m.	Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston. Morn h.	Eve. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	☽ Place	☽ Age
152	1	Tu.	4 10	D	7 14	N	15 04	18	5	5½	12$^{P}_{M}$28	H	12$^{A}_{M}$31	K	VIR	8
153	2	W.	4 09	D	7 15	N	15 06	18	6	6½	1 28	I	12 50	I	VIR	9
154	3	Th.	4 09	D	7 16	O	15 07	18	6¾	7¼	2 29	K	1 09	H	LIB	10
155	4	Fr.	4 08	C	7 16	O	15 08	18	7½	8	3 32	L	1 28	G	LIB	11
156	5	Sa.	4 08	C	7 17	O	15 09	17	8½	8¾	4 37	M	1 52	F	SCO	12
157	6	C	4 08	C	7 17	O	15 09	17	9¼	9½	5 43	N	2 17	D	SCO	13
158	7	M.	4 07	C	7 17	O	15 10	17	10	10	6 50	P	2 50	C	—	14
159	8	Tu.	4 07	C	7 18	O	15 11	17	10¾	10¾	7 51	P	3 31	B	—	—
160	9	W.	4 07	C	7 19	O	15 12	17	11½	11½	8 44	P	4 26	B	SGR	16
161	10	Th.	4 07	C	7 19	O	15 12	16	—	0¼	9 32	P	5 27	B	CAP	17
162	11	Fr.	4 07	C	7 20	O	15 13	16	0¼	1	10 10	O	6 39	B	CAP	18
163	12	Sa.	4 07	C	7 20	O	15 13	16	1	1¾	10 42	M	7 53	D	AQR	19
164	13	C	4 07	C	7 21	O	15 14	16	2	2½	11 08	L	9 09	E	AQR	20
165	14	M.	4 07	C	7 21	O	15 14	16	2¾	3½	11 33	K	10 24	G	AQR	21
166	15	Tu.	4 07	C	7 22	O	15 15	15	3¾	4¼	11$^{P}_{M}$56	I	11$^{A}_{M}$39	H	PSC	22
167	16	W.	4 07	C	7 22	O	15 15	15	4½	5¼	—	—	12$^{P}_{M}$51	J	PSC	23
168	17	Th.	4 07	C	7 23	O	15 16	15	5¾	6¼	12$^{A}_{M}$22	H	2 06	K	ARI	24
169	18	Fr.	4 07	C	7 23	O	15 16	15	6¾	7	12 47	F	3 23	L	ARI	25
170	19	Sa.	4 07	C	7 23	O	15 16	15	7¾	8	1 20	E	4 39	N	TAU	26
171	20	C	4 07	C	7 24	O	15 17	14	8¾	9	1 56	C	5 52	P	TAU	27
172	21	M.	4 07	C	7 24	O	15 17	14	9½	10	2 43	B	6 59	P	G'M	28
173	22	Tu.	4 07	C	7 24	O	15 17	14	10½	10¾	3 41	B	7 53	P	G'M	0
174	23	W.	4 08	C	7 24	O	15 17	14	11½	11½	4 46	B	8 39	P	CAN	1
175	24	Th.	4 08	C	7 25	O	15 17	13	—	0¼	5 53	B	9 18	O	CAN	2
176	25	Fr.	4 08	C	7 25	O	15 17	13	0¼	1	7 03	D	9 46	M	LEO	3
177	26	Sa.	4 09	C	7 25	O	15 16	13	1	1¾	8 10	E	10 12	L	LEO	4
178	27	C	4 09	C	7 25	O	15 16	13	2	2½	9 14	F	10 33	K	VIR	5
179	28	M.	4 09	C	7 25	O	15 16	13	2¾	3¼	10 15	H	10 53	J	VIR	6
180	29	Tu.	4 10	C	7 25	O	15 15	12	3½	4	11$^{A}_{M}$16	I	11 12	I	VIR	7
181	30	W.	4 10	C	7 25	O	15 15	12	4¼	4¾	12$^{P}_{M}$48	J	11$^{P}_{M}$31	G	LIB	8

JUNE hath 30 days. [1971

Lilacs, laurel, azaleas, the flowering trees
Brighten the forests, hedges, cellar holes of yore.
Each flower an antenna after the blooms have ceased,
To pluck or not to pluck these is the argument evermore.

D. M.	D. W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	Tu.	Nicomede • ☾ on Eq. Tides 8.6 / 8.5	*Thunder,*	Where can we find the old-fashioned barn yard like grandfather's? With the cow barn, sheep shed and great hay barn with pigeons on the roof. Through the open door you could see hay piled up on either side (how often we looked there for "stolen nests"). Outside in the yard stood Ned and Dandy at the haywagon. There were chickens, ducks, geese and the big white goose—and sometimes chicks and ducklings, or a new wobbly calf with its mother, or piglets streaming around like minnows.
2	W.	Ember days 2, 4 and 5 • ☾ in Apo. 8.3 / 8.6	*lightning*	
3	Th.	♂☌☾ • Jeff. Davis Day Hol. 8 So. States 8.2 / 8.8	*& a big*	
4	Fr.	*The only servant you'll really like will be yourself* 8.1 / 9.1	*hulla-*	
5	Sa.	P.M. thunder-storms Fla. • [6th Inv. D. Day] 8.2 / 9.3	*baloo*	
6	C	Trin. S. • ♂☿♄ • ☾ rides low	*scares*	Mr. and Mrs. Allen Fox's Friendly Farm in Dublin, N. H. is much like that—with all the farm animals (3 of each) and chickens, ducks and geese, including the old Chinese goose, brown and white with a big knob on his head.
7	M.	O.K. to marry until Advent S. ♂☍☾ • ♂Ψ☾	*the*	
8	Tu.	The Full Hot Moon • Laurel blooms	*daylights out of*	
9	W.	1802-West Point fnd. • 100° deg. Seattle-1953 8.7 / 10.3	*poor*	
10	Th.	Corpus Christi • Early sunrises (7-22)	*little*	Everything has young ones—colts and calfs, lambs, kids and piglets. Little chicks, goslings and ducklings are everywhere. There are rabbits, of course, and gerbils—and donkeys. A peacock struts around. A fallow deer and fawns have their own pasture. You can pat or talk with any of the birds or animals—but *don't chase them.*
11	Fr.	♂☿♄ • Kamehameha Day, Hawaii 10.4 / 9.0	*you.*	
12	Sa.	[13th ♂☌☾ • ☾ at ♌] 10.5 / 9.1	*That*	
13	C	2nd a. ♇. • P Stat. L in R.A. 10.4 / 9.3	*storm*	Special attractions are the beehive with a window to see the queen bee—an incubator hatching an egg every few minutes. At Christmas it is the creche—the manger with live barn animals around it. The Foxes will be glad to see you.
14	M.	Flag D. Stat. Liberty arrives U.S. 10.2 / 9.5	*was*	
15	Tu.	*Time is the herb to cure all diseases* • ☾ on Eq.	*warm.*	
16	W.	[17th ☉ Stat. in R.A. • ☾ in Peri.] 9.7 / 10.0	*A sultry*	
17	Th.	Bunker's Hill Day • Hol. Suff. Co. Mass. • Harvard Com'ment.		
18	Fr.	1st duel N.E. 1621 • Sacred Heart •	*smell's in the*	
19	Sa.	Longest days (20-25) • ☾ runs high [20th ♂♄☾]	*hen*	
20	C	2nd a. ☾. Father's Day 9.1 / 10.9	*house ell.*	
21	M.	Summer 8:20 P.M. • ♂☿☉ Sup. • ♂♀☾	*Take*	
22	Tu.	Germans Inv. Russia-1941 9.2 / 11.0	*care*	
23	W.	☿ Ev'g. star • Delmarva chick festival (24-26) 9.2 / 10.8	*you*	
24	Th.	Nat. John Baptist • Latest sunsets (24-30) —/9.1	*hayers,*	
25	Fr.	*Eat to please thyself dress to please others* 10.6 / 9.0	*those*	
26	Sa.	☾ at ♉ Ded. St. Lawrence S'way-1959	*thunder-*	
27	C	4th a. ♇. • Tides 9.8 / 8.9	*heads are*	
28	M.	1809-1st St. Boat L. Champlain Tides 9.4 / 8.8	*dangerous*	
29	Tu.	Peter & Paul • ☾ on Eq. [30th ♂☌☾ • ☾ in Apo.]		
30	W.	Dawn precedes day / twilight follows day Appr. 2 hrs.	*players.*	

Here lies dumb Platt, forgot to wear his hat.

1971] JULY, Seventh Month.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.

Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /
1	23 N. 11	7	22 46	13	22 04	19	21 09	25	20 01		
2	23 09	8	22 40	14	21 56	20	20 58	26	19 48		
3	23 05	9	22 33	15	21 47	21	20 48	27	19 35		
4	23 01	10	22 27	16	21 38	22	20 36	28	19 22		
5	22 56	11	22 19	17	21 29	23	20 25	29	19 09		
6	22 51	12	22 12	18	21 19	24	20 13	30	18 55		

○ Full Moon, 8th day, 5 h. 37 m., morning, W.
☾ Last Quarter, 15th day, 12 h. 47 m., morning, W.
● New Moon, 22nd day, 4 h. 16 m., morning, E.
☽ First Quarter, 30th day, 6 h. 08 m., morning, E.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	Key	☉ Sets h. m.	Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston. Morn h.	Full Sea, Boston. Eve. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	☽ Place	☽ Age
182	1	Th.	4 10	C	7 24	O	15 14	12	5	5½	1 P M 17	K	11 P M 54	F	LIB	9
183	2	Fr.	4 11	C	7 24	O	15 13	12	6	6½	2 19	L	—	—	LIB	10
184	3	Sa.	4 12	C	7 24	O	15 12	12	7	7¼	3 26	N	12 A M 19	E	SCO	11
185	4	C	4 12	C	7 24	O	15 12	11	7¾	8	4 33	P	12 48	D	SCO	12
186	5	M.	4 13	C	7 23	O	15 11	11	8½	8¾	5 36	P	1 24	B	SGR	13
187	6	Tu.	4 13	C	7 23	O	15 10	11	9½	9½	6 35	P	2 12	B	SGR	14
188	7	W.	4 14	C	7 23	O	15 09	11	10¼	10½	7 25	P	3 12	B	CAP	15
189	8	Th.	4 14	C	7 22	O	15 08	11	11	11¼	8 07	P	4 21	B	—	—
190	9	Fr.	4 15	C	7 22	O	15 07	11	11¾	—	8 42	N	5 37	C	CAP	16
191	10	Sa.	4 16	C	7 21	O	15 05	10	0	0½	9 12	L	6 56	E	AQR	17
192	11	C	4 17	C	7 21	O	15 04	10	0¾	1¼	9 38	K	8 11	F	AQR	18
193	12	M.	4 17	D	7 20	N	15 03	10	1½	2¼	10 01	J	9 27	H	PSC	19
194	13	Tu.	4 18	D	7 20	N	15 02	10	2½	3	10 26	H	10 42	I	PSC	20
195	14	W.	4 19	D	7 19	N	15 00	10	3½	4	10 52	G	11 A M 57	K	ARI	21
196	15	Th.	4 20	D	7 19	N	14 59	10	4¼	4¾	11 20	E	1 P M 12	L	ARI	22
197	16	Fr.	4 21	D	7 18	N	14 57	10	5¼	5¾	11 P M 56	D	2 29	N	TAU	23
198	17	Sa.	4 22	D	7 18	N	14 56	10	6½	6¾	—	—	3 41	P	TAU	24
199	18	C	4 23	D	7 17	N	14 54	10	7½	7¾	12 A M 37	B	4 48	P	G'M	25
200	19	M.	4 24	D	7 16	N	14 52	10	8½	8¾	1 27	B	5 47	P	G'M	27
201	20	Tu.	4 24	D	7 16	N	14 52	9	9½	9¾	2 39	B	6 36	P	CAN	28
202	21	W.	4 25	D	7 15	N	14 50	9	10¼	10½	3 35	B	7 14	P	CAN	29
203	22	Th.	4 26	D	7 14	N	14 48	9	11	11¼	4 44	C	7 47	N	LEO	0
204	23	Fr.	4 27	D	7 13	N	14 46	9	—	0	5 53	D	8 14	M	LEO	1
205	24	Sa.	4 28	D	7 12	N	14 44	9	0	0½	6 58	F	8 36	L	LEO	2
206	25	C	4 29	D	7 11	N	14 42	9	0¾	1¼	8 00	G	8 56	J	VIR	3
207	26	M.	4 30	D	7 10	N	14 40	9	1½	2	9 01	H	9 16	I	VIR	4
208	27	Tu.	4 31	D	7 09	N	14 38	9	2	2½	10 02	J	9 35	H	LIB	5
209	28	W.	4 32	D	7 08	N	14 36	9	2¾	3¼	11 A M 04	K	9 56	G	LIB	6
210	29	Th.	4 33	D	7 07	N	14 34	9	3½	4	12 P M 05	L	10 19	E	LIB	7
211	30	Fr.	4 34	D	7 06	N	14 32	9	4½	A 4¾	1 09	M	10 47	D	SCO	8
212	31	Sa.	4 35	E	7 05	M	14 30	9	5¼	5½	2 P M 16	O	11 P M 19	B	SCO	9

JULY hath 31 days. [1971

Water's warm enough, air's not too cold,
The sunshine's bright as any marigold.
Come swim, relax and fully enjoy
These few weeks other seasons fail to annoy.

D.M.	D.W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	Th.	Dominion Day • Tides {8.2 8.7 Blood of Christ	*Far*	Picking. How many of us today know—or remember—the joy of picking—blueberries, wild strawberries, wild grapes? Blueberries especially, although along the sun-warmed walls the wild grapes grew, and campestris, the field mushrooms, were common, and patches of upland cranberries, as well as the bog variety.
2	Fr.	Visitation U.S.A.A.F. {7.9 with Eliz. • Fd.-1926 {8.8	*western*	
3	Sa.	[4th ☌☽☾• ☌♆☾• ☾{rides low]	*floods*	
4	C	4th a. ☪. • Indep. Day • ⊕ in Aph.	*block*	
5	M.	*Live to Honor thy Father and Mother* • {8.0 9.6	*off some*	When blueberries were ripe, mother, father, Nell, and we three boys—each with an old lard pail—went picking. Because it was fun—all of us together—something we'd always done, and because (the real reason perhaps) berries were a bounty—free—and it was a sin not to harvest them. Berrying was like going to church and having fun too. We were not alone when we went berrying. The birds were always there, and sometimes a fox or a raccoon.
6	Tu.	1928-1st talkies-N.Y.C. {8.2 10.0	*roads.*	
7	W.	Francis Cabrini • B.C. 587 Jerusalem razed {8.5 10.4	*Now*	
8	Th.	The Full Buck Moon • 1796-1st Am. passport	*look out*	
9	Fr.	"You shall not crucify mankind on cross of gold" {9.2 —	*tricky*	
10	Sa.	☌☌☾ • ☾at ♌ Tides {10.9 9.6	*storms*	
11	C	6th a. ♇. Tides {10.9 9.9	*are about.*	
12	M.	☽ Stat. in R.A. • ☾ in Peri. • ☾ on Eq. {10.8 10.2	*Temper-*	
13	Tu.	1930-1st TV broadcast • Hol. Tenn. {10.5 10.3	*atures*	
14	W.	Bastile Day • Goddard pat. liq. fuel rocket 1914 {10.1 10.4	*are*	
15	Th.	St. Swithin If it rains today will rain 40 days	*plenty*	
16	Fr.	1918-Exec. Czar of Russia His 4 ch. & 15,000 others {9.2 10.4	*high*	
17	Sa.	☾ runs high • 1861 First U.S. paper money {8.8 10.3	*for*	
18	C	6th a. ☪. • ☌♄☾ {8.6 10.4	*almost*	
19	M.	*To win your lawsuit may leave you stark naked*	*any doll*	
20	Tu.	1960 1st undersea launch Polaris missile {8.7 10.5	*or guy.*	
21	W.	Daniel Prophet • Hemingway b. 1899	*Wind & rains*	
22	Th.	M. Magdalene Sun Part. eclipse {8.9 10.4	*cool off*	
23	Fr.	[24th ☌☿☾ • ☾at ♌]	*lovers' lanes.*	
24	Sa.	☽ Stat in R.A. • Hol. Utah • {10.3 9.1	*Don't cut*	
25	C	8th a. ♇. • Dog days begin {10.0 9.1	*short*	
26	M.	☾ on Eq. • 1768 Simsbury, Ct. Hail Storm {9.7 9.1	*your*	
27	Tu.	☾ in Apo. [28th ☌☉☾] {9.3 9.1	*vacation,*	
28	W.	*Your best team is courage with discretion* {8.9 9.0	*its fine*	
29	Th.	☿ Gr. El. E. 27° • 1914 Cape Cod Canal op'nd.	*clear*	
30	Fr.	Pony Penning Assateague, Va. Tides {8.1 8.8	*across the*	
31	Sa.	☾{rides low • Wilkes Barre downpour-1946 {7.8 8.8	*nation.*	And that is the sad and simple story of the blueberry.

Today few of us go picking. Good berry patches are scarce. And there is a reason for this. When country New England was a world of cows, blueberries were plentiful. Grazing in the generous depths of a pasture the cows left the tough berry bushes and kept down the field pines and birches. So berry bushes grew and spread. Now most of our cows have gone or become barn animals with little pasturing. More rapidly than we realize, brush and forest take over the pastures.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.

Days.	°	′	Days.	°	′	Days.	°	′	Days.	°	′	Days.	°	′
1	18N.	11	7	16	37	13	14	53	19	13	00	25	11	00
2	17	56	8	16	20	14	14	34	20	12	40	26	10	39
3	17	41	9	16	03	15	14	16	21	12	21	27	10	18
4	17	25	10	15	46	16	13	57	22	12	01	28	9	57
5	17	09	11	15	28	17	13	38	23	11	41	29	9	36
6	16	53	12	15	11	18	13	19	24	11	20	30	9	15

○ Full Moon, 6th day, 2 h. 43 m., evening, E.
☾ Last Quarter, 13th day, 5 h. 56 m., morning, E.
● New Moon, 20th day, 5 h. 54 m. evening, W.
☽ First Quarter, 28th day, 10 h. 57 m., evening, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	Key	☉ Sets h. m.	Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston. Morn h.	Eve. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	☽ Place	☽ Age
213	1	C	4 36	E	7 04	M	14 28	10	6¼	6½	3 P M 22	P	—	—	SGR	10
214	2	M.	4 37	E	7 02	M	14 25	10	7	7½	4 23	P	12 A M 01	B	SGR	11
215	3	Tu.	4 38	E	7 01	M	14 23	10	8	8¼	5 16	P	12 54	B	CAP	13
216	4	W.	4 39	E	7 00	M	14 21	10	9	9¼	6 01	P	2 00	B	CAP	14
217	5	Th.	4 40	E	6 59	M	14 19	10	9¾	10	6 39	O	3 13	B	AQR	15
218	6	Fr.	4 41	E	6 57	M	14 16	10	10½	10¾	7 11	M	4 32	D	—	—
219	7	Sa.	4 42	E	6 56	M	14 14	10	11½	11½	7 40	L	5 51	F	AQR	16
220	8	C	4 43	E	6 55	M	14 12	10	—	0	8 05	J	7 09	G	PSC	17
221	9	M.	4 44	E	6 53	M	14 09	10	0½	1	8 29	I	8 26	H	PSC	18
222	10	Tu.	4 45	E	6 52	L	14 07	11	1¼	1¾	8 56	G	9 43	J	ARI	19
223	11	W.	4 46	F	6 51	L	14 05	11	2	2½	9 23	F	11 A M 01	L	ARI	20
224	12	Th.	4 47	F	6 50	L	14 03	11	3	3½	9 57	D	12 P M 18	M	ARI	21
225	13	Fr.	4 48	F	6 49	L	14 01	11	4	4½	10 36	B	1 33	N	TAU	22
226	14	Sa.	4 49	F	6 47	L	13 58	11	5	5½	11 P M 26	B	2 42	P	TAU	23
227	15	C	4 50	F	6 45	L	13 55	11	6	6½	—	—	3 42	P	G'M	24
228	16	M.	4 51	F	6 44	L	13 53	12	7¼	7½	12 A M 24	B	4 33	P	G'M	25
229	17	Tu.	4 52	F	6 42	L	13 50	12	8¼	8½	1 28	B	5 15	P	CAN	26
230	18	W.	4 53	F	6 40	L	13 47	12	9¼	9½	2 34	B	5 48	N	CAN	27
231	19	Th.	4 54	F	6 38	L	13 44	12	10	10¼	3 43	D	6 16	M	LEO	28
232	20	Fr.	4 56	F	6 37	L	13 41	13	10¾	11	4 48	E	6 40	L	LEO	0
233	21	Sa.	4 57	F	6 35	L	13 38	13	11½	11½	5 52	G	7 00	K	VIR	1
234	22	C	4 58	F	6 34	L	13 36	13	—	0	6 54	H	7 21	J	VIR	2
235	23	M.	4 59	F	6 33	L	13 34	13	0¼	0¾	7 54	I	7 41	H	VIR	3
236	24	Tu.	5 00	F	6 32	L	13 32	14	1	1¼	8 55	J	8 00	G	LIB	4
237	25	W.	5 01	F	6 30	K	13 29	14	1½	2	9 56	L	8 23	F	LIB	5
238	26	Th.	5 02	G	6 28	K	13 26	14	2¼	2½	11 A M 00	M	8 48	E	SCO	6
239	27	Fr.	5 03	G	6 26	K	13 23	14	3	3¼	12 P M 04	N	9 17	D	SCO	7
240	28	Sa.	5 05	G	6 24	K	13 19	15	3¾	4	1 07	P	9 54	B	SCO	8
241	29	C	5 06	G	6 23	K	13 17	15	4½	5	2 09	P	10 41	B	SGR	9
242	30	M.	5 07	G	6 21	K	13 14	15	5½	6	3 03	P	11 P M 41	B	SGR	10
243	31	Tu.	5 08	G	6 19	K	13 11	16	6½	6¾	3 P M 42	P	—	—	CAP	11

AUGUST hath 31 days. [1971

Somehow this month is never itself quite—
A serene hot spell, then tornadoes and fright.
In from the sea come storms bearing fall,
It's a wonder there's any such month at all.

D.M.	D.W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓
1	C	8th a. ☾. Lammas D. {7.7 9.2	*Your best*
2	M.	[1st ☌♃☾ • ☌♆☾] {7.7 9.2	*notion*
3	Tu.	*So you'd live long but never be old* • Tides {7.9 9.6	*is to*
4	W.	Sodom & Gomorrah • 1741 Zenger's lwyr. died {8.3 10.1	*buy*
5	Th.	[6th-Transfiguration] {8.8 10.6	*sun-tan*
6	Fr.	Full Sturgeon Moon in total eclipse ☾at ♌	*lotion.*
7	Sa.	NAME OF JESUS • ☌♂☾ {9.9 11.2	*Woops!*
8	C	10th a. ♆. ☾ in Peri. {— 10.4	*be careful*
9	M.	Tears of St. Lawrence 9-14 ☾on Eq. {11.8 10.8	*two sharp*
10	Tu.	☌♂☉ • ♂Ev'g. star {11.0 11.0	*tempests just*
11	W.	☿Stat. in R.A. • ♂Closest to earth {10.6 10.9	*might be*
12	Th.	♆Stat. in R.A. • King Philip d. R.I. 1676 {10.0 10.7	*fearful.*
13	Fr.	☾runs high [14th ☌♄☾] {9.4 10.5	*A south-*
14	Sa.	[15th. Assumption Virgin Mary] • Hol. Ark. {8.9 10.2	*east*
15	C	10th a. ☾. Tides {8.5 9.9	*gale,*
16	M.	Battle of Bennington, Vt. Tides {8.3 9.9	*very wet,*
17	Tu.	1682 Comet over N.E. {8.3 9.9	*turns out*
18	W.	1587 V. Dare born Roanoke, Va. Tides {8.5 10.0	*to be a*
19	Th.	☾at ♌ Ct. Rumford d. 1814 {8.8 10.1	*hurricane*
20	Fr.	Partial Eclipse of the sun • Tides {9.0 10.1	*threat.*
21	Sa.	Fall's first real storm is far from warm {9.2 10.0	*The Last*
22	C	12th a. ♆. • ☾on Eq. {9.3 —	*Rose of*
23	M.	*To forgive your enemy sets you above him* {9.8 9.4	*Summer*
24	Tu.	☌☉☾ • ☾in Apo. Tides {9.5 9.4	*is a*
25	W.	1893-S. Atl. Hurricane Tides {9.2 9.3	*swim*
26	Th.	☌☿☉ Inf. • {8.8 9.2	*suit drummer.*
27	Fr.	♀Ev'g. Star • ☌♀☉ Sup. • ☾rides low	
28	Sa.	☌♃☾ • ☌♆☾ • Tides {8.1 8.8	*Too*
29	C	12th a. ☾. Tides {7.8 8.8	*cool*
30	M.	Year's lowest A.M. high tide • Hol. La. {7.6 8.9	*for the*
31	Tu.	1837 R.W. Emerson addr. Phi Beta Kappa Soc. {7.7 9.2	*pool.*

Farmer's Calendar.

The common sense rules of where to live are simple: 1) In the town and neighborhood of one's choosing on land ample for one's needs, and in a house with sufficient water supply, proper sewerage, a dry cellar—and set on well-drained land; 2) Where there is no smog or flood danger; no danger of having the house slide into the ocean, being buried in mud, or burned in a brush or forest fire.

Simple—ideal. For most of us impossible. We live where we must because we know no better; "because we always have lived here"; of course, behind the dikes of great rivers, or lowlands of the gulf, or natural flood plains anywhere, or smog areas (most cities) are "wrong places." Add the dollar costs to live in such areas: dike upkeep, hurricane and flood damage, smog (?)—and the human cost —lives.

Fortunate people, or the retired who can afford it—find homes or build them in the "right places"—to live happily —if briefly—ever after. Pity the rest of the world—not only those in ghettos, crowded suburbs or squalid tenements—but our children, and most newlyweds who live where "his job" dictates. In the cycle of human existence, man's own tormented ecology, his forced adjustment to harsh and alien environments, are quite as disturbing as the problems of DDT—or a world of Everglades.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.

Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /
1	8N.32	7	6 19	13	4 03	19	1 45	25	0 35		
2	8 10	8	5 57	14	3 40	20	1 21	26	0 59		
3	7 48	9	5 34	15	3 17	21	0 58	27	1 22		
4	7 26	10	5 12	16	2 54	22	0 35	28	1 45		
5	7 04	11	4 49	17	2 31	23	0N.11	29	2 09		
6	6 42	12	4 26	18	2 08	24	0S. 12	30	2 32		

○ Full Moon, 4th day, 11 h. 03 m., evening, E.
☾ Last Quarter, 11th day, 1 h. 24 m., evening, W.
● New Moon, 19th day, 9 h. 43 m., morning, E.
First Quarter, 27th day, 12 h. 18 m., evening, E.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	Key	☉ Sets h. m.	Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston. Morn h.	Full Sea, Boston. Eve. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	☽ Place	☽ Age
244	1	W.	5 09	G	6 18	K	13 09	16	7½	7¾	4PM32	P	12AM49	B	CAP	12
245	2	Th.	5 10	G	6 17	K	13 07	16	8½	8¾	5 06	N	2 03	C	AQR	13
246	3	Fr.	5 11	G	6 15	K	13 04	17	9¼	9½	5 38	L	3 22	E	AQR	14
247	4	Sa.	5 12	G	6 13	K	13 01	17	10	10½	6 05	K	4 42	F	PSC	15
248	5	C	5 13	G	6 11	K	12 58	17	11	11¼	6 32	I	6 01	H	—	—
249	6	M.	5 14	G	6 09	K	12 55	18	11¾	—	6 47	H	7 20	I	PSC	16
250	7	Tu.	5 15	H	6 08	J	12 53	18	0	0½	7 25	F	8 40	K	ARI	17
251	8	W.	5 16	H	6 06	J	12 50	18	1	1¼	7 55	E	9 59	M	ARI	18
252	9	Th.	5 17	H	6 04	J	12 47	19	1¾	2¼	8 34	C	11AM18	N	TAU	19
253	10	Fr.	5 18	H	6 02	J	12 44	19	2¾	3	9 21	B	12PM32	P	TAU	20
254	11	Sa.	5 19	H	6 00	J	12 41	19	3¾	4	10 16	B	1 37	P	G'M	21
255	12	C	5 20	H	5 59	J	12 39	20	4¾	5	11PM09	B	2 30	P	G'M	22
256	13	M.	5 21	H	5 57	J	12 36	20	6	6¼	—	—	3 15	P	CAN	23
257	14	Tu.	5 22	H	5 55	J	12 33	20	7	7¼	12AM25	B	3 51	O	CAN	24
258	15	W.	5 23	H	5 53	J	12 30	21	8	8¼	1 32	D	4 20	N	LEO	25
259	16	Th.	5 24	H	5 51	J	12 27	21	9	9¼	2 34	E	4 45	L	LEO	26
260	17	Fr.	5 25	H	5 50	J	12 25	21	9¾	10	3 42	F	5 07	K	VIR	27
261	18	Sa.	5 26	H	5 48	J	12 22	22	10½	10½	4 43	G	5 27	J	VIR	28
262	19	C	5 27	I	5 46	I	12 19	22	11	11¼	5 43	I	5 47	I	VIR	29
263	20	M.	5 28	I	5 44	I	12 16	22	11½	11¾	6 43	J	6 07	G	LIB	1
264	21	Tu.	5 29	I	5 43	I	12 14	23	—	0	7 47	K	6 28	F	LIB	2
265	22	W.	5 30	I	5 42	I	12 12	23	0½	0¾	8 47	L	6 51	E	LIB	3
266	23	Th.	5 31	I	5 40	I	12 09	23	1	1¼	9 51	N	7 20	D	SCO	4
267	24	Fr.	5 32	I	5 38	I	12 06	24	1¾	2	10 55	O	7 54	B	SCO	5
268	25	Sa.	5 33	I	5 36	I	12 03	24	2½	2¾	11AM56	P	8 36	B	SGR	6
269	26	C	5 34	I	5 34	I	12 00	24	3¼	3½	12PM52	P	9 30	B	SGR	7
270	27	M.	5 35	I	5 33	I	11 58	25	4	4½	1 43	P	10 32	B	CAP	8
271	28	Tu.	5 36	I	5 31	I	11 55	25	5	5½	2 24	P	11PM42	B	CAP	9
272	29	W.	5 37	J	5 29	H	11 52	25	6	6¼	3 03	N	—	—	AQR	10
273	30	Th.	5 38	J	5 28	H	11 49	26	7	7½	3PM33	M	12AM56	D	AQR	11

SEPTEMBER hath 30 days. [1971

This is the month in which the world began,
A much better cradle than cold, frozen Jan.
How joyous our harvest, our blessings and future
If we might start now our hopes to nurture.

D.M.	D.W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓
1	W.	Hay fever nears peak • Tides {8.0 9.7	*Tropical*
2	Th.	New style Cal. 1752 ☾at ♌ {8.6 10.2	*disturbance*
3	Fr.	[4th The Full Corn Moon] ☌☍☾	*just off*
4	Sa.	☿ Stat in R.A. • Moses Patriarch	*Port-au-Prince.*
5	C	14th a. ℙ. • ☾ on Eq.	*Five hun-*
6	M.	Labor Day • ☾ in Perl. {11.2 —	*dred drivers*
7	Tu.	N.H. Primary elections • ☾ runs high {11.3 11.5	*dead,*
8	W.	Nativity of Mary • Dog Days over (6th) {11.0 11.5	*enough*
9	Th.	Niagara's rock fell 1853 • Hol. Calif. {10.5 11.3	*said.*
10	Fr.	1846 Sewing mach. pat. • ☌♄☾ • ☍ Stat. in R.A.	*On*
11	Sa.	Lucky for reapers • 1954 Hurr. Edna hits N.E.	*land or at*
12	C	14th a. ♏. • ☿ Gr. El. W. 18° • Hol. Md.	*sea these*
13	M.	*Cat in gloves catches no mice* {8.8 9.5	*days are fine*
14	Tu.	Holy Cross • 1716 Boston Light 1st in America	*as can be.*
15	W.	Fall coloring now to Oct. 20 • ☾at ♌ {8.4 9.5	*Storm*
16	Th.	1186 Conj. all S. planets Libra • Hol. Okla. {8.6 9.6	*warnings*
17	Fr.	Citizen-ship Day • ☌♃♆ {8.9 9.6	*galore*
18	Sa.	☌☿☾ [19th ♄ Stat. in R.A. • ☾ on Eq.]	*won't*
19	C	16th a. ℙ. • ☌☉	*keep storms*
20	M.	Jewish New Year Rosh Hashanah Tides {9.6 9.5	*on or off*
21	Tu.	Saint Matthew • Ember days 22, 24, 25 ☾ in Apo.	*shore.*
22	W.	Man became God's reflection [23rd ☌ ☉ ☾]	*Mid-*
23	Th.	Fall begins 11:45 A.M. • ☾ rides low ☉ ent. Libra	*night*
24	Fr.	American Indian D. • ☌ ♆ ☾ {8.7 9.3	*gales tell*
25	Sa.	☌♃☾ • 1690-1st U.S. newspaper {8.4 9.1	*weird*
26	C	16th a. ♏. Day equals night {8.0 9.0	*tales.*
27	M.	*To learn value of money borrow some* Tides {7.8 8.9	*Now for*
28	Tu.	[29th-All angels. Michael Gabriel and Raphael] {7.8 9.0	*Fall &*
29	W.	Day of Atonement Yom Kippur • {8.0 9.8	*games of*
30	Th.	Saint Jerome • ☌☍☾ • ☾at ♌	*football.*

The Harvest Moon is the one nearest the equinox, so this year it comes Oct. 4

Farmer's Calendar.

When I was a boy, Dad and I often took a Sunday walk over his land, about 200 acres of oak and pine, a spring brook, swamp and pastures. A single big path went directly through it. One Sunday Dad said, "We need another path. Go ahead and make it." I knew well enough how to use my axe, the big brush cutters, and the pruning saw, though I'd never cut a path.

But the next day, all excited, I went down past the big pine and along the orchard wall to where the cows had their own path through the berry bushes. I went in and tramped back and forth blazing to the special places I wanted my path to see—the spring, down the brook to the white birches, the porcupine rock and the dens, and along the pine knoll where you found the lady slippers and the May flowers and the hobble bush in springtime.

Dad hadn't said anything about the path wandering, but it was going to sure enough, a little wandering path the sun looked into and the trees arched over.

When I was cutting, by mistake I had cut beyond two of my special places. So I made two little extra paths to them. "Sight seeing paths," Dad called them. But he liked it all, and I was proud as punch.

I remember this now, for my grandsons, who live over the hill from us, are cutting their own path to our house.

1971] OCTOBER, TENTH MONTH.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.	° ′	Days.	° ′	Days.	° ′	Days.	° ′	Days.	° ′
	1	2s. 55	7	5 14	13	7 31	19	9 44	25	11 52
	2	3 19	8	5 37	14	7 54	20	10 06	26	12 13
	3	3 42	9	6 00	15	8 16	21	10 27	27	12 33
	4	4 05	10	6 23	16	8 38	22	10 49	28	12 54
	5	4 28	11	6 46	17	9 00	23	11 10	29	13 14
	6	4 51	12	7 09	18	9 22	24	11 31	30	13 34

○ Full Moon, 4th day, 7 h. 20 m., morning, W.
Last Quarter, 11th day, 12 h. 30 m., morning, E.
● New Moon, 19th day, 3 h. 00 m., morning, E.
First Quarter, 27th day, 12 h. 55 m., morning, W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	Key	☉ Sets h. m.	Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston. Morn h.	Full Sea, Boston. Eve. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	☽ Place	☽ Age
274	1	Fr.	5 40	J	5 26	H	11 46	26	8	8¼	4P M02	L	2A M14	F	PSC	12
275	2	Sa.	5 41	J	5 24	H	11 43	27	8¾	9¼	4 28	J	3 36	G	PSC	13
276	3	C	5 42	J	5 22	H	11 40	27	9½	10	4 54	I	4 50	I	ARI	14
277	4	M.	5 43	J	5 20	H	11 37	27	10½	11	5 21	G	6 09	J	—	—
278	5	Tu.	5 45	J	5 19	H	11 34	27	11¼	11¾	5 53	F	7 32	L	ARI	15
279	6	W.	5 46	J	5 17	H	11 31	28	—	0	6 30	D	8 53	M	ARI	16
280	7	Th.	5 47	J	5 15	H	11 28	28	0½	1	7 14	B	10 13	O	TAU	17
281	8	Fr.	5 48	J	5 14	H	11 26	28	1½	1¾	8 09	B	11A M24	P	G'M	19
282	9	Sa.	5 49	J	5 12	H	11 23	29	2½	2¾	9 12	B	12P M23	P	G'M	20
283	10	C	5 50	J	5 10	H	11 20	29	3½	3¾	10 20	B	1 12	P	CAN	21
284	11	M.	5 52	K	5 09	G	11 17	29	4½	4¾	11P M26	C	1 51	P	CAN	22
285	12	Tu.	5 53	K	5 08	G	11 15	29	5½	5¾	—	—	2 24	N	LEO	23
286	13	W.	5 54	K	5 05	G	11 11	30	6½	7	12A M33	E	2 50	M	LEO	24
287	14	Th.	5 55	K	5 03	G	11 08	30	7½	8	1 37	F	3 13	L	LEO	25
288	15	Fr.	5 56	K	5 02	G	11 06	30	8½	8¾	2 38	G	3 33	J	VIR	26
289	16	Sa.	5 57	K	5 00	G	11 03	30	9¼	9½	3 39	H	3 53	I	VIR	27
290	17	C	5 58	K	4 59	G	11 01	30	9¾	10	4 39	J	4 13	H	LIB	28
291	18	M.	5 59	K	4 57	G	10 58	31	10½	10¾	5 41	K	4 33	G	LIB	29
292	19	Tu.	6 01	K	4 56	G	10 55	31	11	11½	6 41	L	4 57	F	LIB	0
293	20	W.	6 02	K	4 54	G	10 52	31	11½	—	7 46	M	5 24	D	SCO	1
294	21	Th.	6 03	K	4 53	G	10 50	31	0	0	8 49	N	5 56	C	SCO	2
295	22	Fr.	6 04	K	4 52	G	10 48	31	0½	0¾	9 52	P	6 36	B	SGR	3
296	23	Sa.	6 05	L	4 50	F	10 45	31	1¼	1½	10 48	P	7 24	B	SGR	4
297	24	C	6 06	L	4 48	F	10 42	32	2	2¼	11A M39	P	8 23	B	SGR	6
298	25	M.	6 08	L	4 47	F	10 39	32	2¾	3	12P M22	P	9 30	B	CAP	7
299	26	Tu.	6 09	L	4 45	F	10 36	32	3¾	4	1 00	P	10 40	D	CAP	8
300	27	W.	6 11	L	4 44	F	10 33	32	4½	5	1 33	N	11P M54	E	AQR	9
301	28	Th.	6 12	L	4 43	F	10 31	32	5½	6	2 00	L	—	—	AQR	10
302	29	Fr.	6 14	L	4 42	F	10 28	32	6½	7	2 26	K	1A M07	F	PSC	11
303	30	Sa.	6 15	L	4 41	F	10 26	32	7½	8	2 52	I	2 22	H	PSC	12
304	31	C	6 16	L	4 40	F	10 24	32	8¼	8¾	3P M28	H	3A M40	I	ARI	13

OCTOBER hath 31 days. [1971

Pumpkins, turkeys, hillsides glowing with color,
Three weeks out of four completely solar,
Harvest and Hunter's Moons visit this sky,
Forest rangers shudder, the woods are too dry.

D.M.	D.W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	Fr.	Scallop season • Prune, plant, forest trees {9.2 10.2}	*Moonlight*	Oregon, California, Virginia, and New England are, with New York, our great apple regions. But, historically, New York State and Geneva in New York, are the patriarch kingdom and apple capital. In Geneva, the New York Agricultural Experiment Station has, for almost a hundred years, been the laboratory of research, experiment and production of most of our known apple varieties. Today it continues the heritage of two monumental volumes, published in 1905, "The Apples of New York." These volumes are the meat and summary of most previous apple records, with history and description of more than 3500 varieties, illustrated with 200 halftone and color plates. Nowhere is better told the apple story, from the first wild fruits of the Caucasus to the cultivated commercial favorites. An apple grown from seed is seldom true to the parent stock, and seed hybrids are rare. Most varieties are developed by grafting, though "sports" or "freaks" may become developed strains. Such are the popular red and early varieties—or variations. Since 1885, The Geneva Experiment Station has conducted an apple breeding and testing program. Annually The New York Fruit Testing Corporation Society brings out its catalogue of New and Noteworthy Fruit, offering the best new selections on free trial to growers.
2	Sa.	[4th The Full Harvest Moon] {10.0 10.6}	*and the*	
3	C	18th a. P. • ☾ on Eq. Tides {10.7 11.0}	*bay*	
4	M.	Taber 1st D. Succoth • ☾ in Peri. {11.4 11.1}	*flood*	
5	Tu.	Freeze ferns for Xmas bouquets • Tides {11.8 11.0}	*the*	
6	W.	Year's highest evening tide • ☾ runs high {— 11.9}	*salt*	
7	Th.	Fall foliage best now • ♂☉☉ {10.7 11.7}	*hay.*	
8	Fr.	♂♄☾ • ♂☿☉ Sup. {10.2 11.8}	*Falling*	
9	Sa.	☿ Ev'g. ☆ star • 1876- 1st 2 way phone {9.6 10.7}	*leaves —*	
10	C	18th a. T. • Hol. Okla. {9.0 10.1}	*corn in*	
11	M.	Columbus D. • Pulaski d. Neb. {8.5 9.5}	*sheaves.*	
12	Tu.	Columbus at San Salvador-1492 • Tides {8.3 9.2}	*Cold*	
13	W.	☾ at ♍ • 1792 O.F.A. beg. {8.8 9.0}	*storm*	
14	Th.	Pear home rush sockeye salmon-N.W. {8.5 9.0}	*drives*	
15	Fr.	Poetry Day Hurricane Hazel 1954 {8.8 9.0}	*bees into*	
16	Sa.	Gallus ♂ay-if dry so will be the spring • ☾ on Eq.	*their*	
17	C	20th a. P. • Tides {9.4 9.1}	*hives.*	
18	M.	Luke, Evan. • ☾ in Apo. Hol. Alas.	*Wet, black*	
19	Tu.	Geese flying south • 1944 Leyte {9.7 9.1}	*trunks*	
20	W.	♂☿☾ • ☾ rides low Tides {9.8 —}	*of trees*	
21	Th.	Edison's 1st. inc. lamp 1879	*is about*	
22	Fr.	♂♆☾ • ♂♃☾ Tides {8.8 9.6}	*all one*	
23	Sa.	[24 Prison th Sunday] World Cr. 4004 B C. {8.5 9.5}	*sees.*	
24	C	20th a. T. U.N. Day Tides {8.3 9.4}	*Leaf*	
25	M.	Veterans' D. • Hitler d. 1956 {8.1 9.2}	*mold*	
26	Tu.	*It takes 2 dry sticks to burn 1 green one* {8.0 9.1}	*should not*	
27	W.	☾ at ♌ • 1840 Early winter beg. {8.1 9.1}	*be burned*	
28	Th.	Simon & Jude ♂♂☾ {8.5 9.3}	*when com-*	
29	Fr.	30th-Noah started to fill his ark {9.0 9.6}	*posting is*	
30	Sa.	Daylight Saving ends tomorrow; set clocks back one hour	*easily*	
31	C	22nd a. P. [30th ☾ on Eq.] Hal. eve	*learned.*	

ASTRONOMICAL CALCULATIONS.

☉'s Declination.	Days.	° ′	Days.	° ′	Days.	° ′	Days.	° ′	Days.	° ′
	1	14s. 13	7	16 05	13	17 47	19	19 18	25	20 37
	2	14 32	8	16 23	14	18 03	20	19 32	26	20 49
	3	14 51	9	16 40	15	18 19	21	19 46	27	21 00
	4	15 10	10	16 57	16	18 34	22	19 59	28	21 11
	5	15 29	11	17 14	17	18 49	23	20 12	29	21 22
	6	15 47	12	17 31	18	19 04	24	20 25	30	21 32

○ Full Moon, 2nd day, 4 h. 20 m., evening, E.
Last Quarter, 9th day, 3 h. 52 m., evening, E.
● New Moon, 17th day, 8 h. 46 m., evening, W.
First Quarter, 25th day, 11 h. 37 m., morning W.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	Key	☉ Sets h. m.	Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston. Morn h.	Full Sea, Boston. Eve. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	☽ Place	☽ Age
305	1	M.	6 18	L	4 39	F	10 21	32	9¼	9¾	3 P M 47	F	4 A M 59	K	ARI	14
306	2	Tu.	6 19	L	4 37	F	10 18	32	10	10½	4 21	E	6 20	L	TAU	15
307	3	W.	6 20	L	4 36	F	10 16	32	11	11½	5 02	C	7 42	N	—	—
308	4	Th.	6 21	L	4 34	F	10 13	32	11¾	—	5 54	B	9 00	P	TAU	16
309	5	Fr.	6 23	L	4 32	E	10 09	32	0¼	0½	6 56	B	10 07	P	G'M	17
310	6	Sa.	6 24	M	4 31	E	10 07	32	1¼	1½	8 04	B	11 02	P	G'M	18
311	7	C	6 25	M	4 30	E	10 05	32	2	2¼	9 13	B	11 A M 48	P	CAN	19
312	8	M.	6 26	M	4 29	E	10 03	32	3	3¼	10 22	D	12 P M 23	N	CAN	20
313	9	Tu.	6 27	M	4 28	E	10 01	32	4	4¼	11 P M 28	E	12 51	M	LEO	21
314	10	W.	6 28	M	4 27	E	9 59	32	5	5¼	—	—	1 17	L	LEO	22
315	11	Th.	6 29	M	4 26	E	9 57	32	6	6¼	12 A M 31	G	1 38	K	VIR	23
316	12	Fr.	6 30	M	4 25	E	9 55	32	7	7¼	1 32	H	1 58	J	VIR	24
317	13	Sa.	6 32	M	4 24	E	9 52	31	7¾	8	2 33	I	2 14	H	VIR	25
318	14	C	6 33	M	4 23	E	9 50	31	8½	9	3 32	J	2 37	G	LIB	26
319	15	M.	6 34	M	4 22	E	9 48	31	9	9½	4 33	L	3 01	F	LIB	27
320	16	Tu.	6 36	M	4 21	E	9 45	31	9¾	10¼	5 36	M	3 26	E	SCO	28
321	17	W.	6 37	N	4 20	D	9 43	31	10½	11	6 41	N	3 57	D	SCO	29
322	18	Th.	6 38	N	4 19	D	9 41	30	11	11½	7 43	P	4 36	B	SCO	0
323	19	Fr.	6 39	N	4 18	D	9 39	30	11¾	—	8 43	P	5 21	B	SGR	1
324	20	Sa.	6 41	N	4 18	D	9 37	30	0¼	0½	9 36	P	6 19	B	SGR	2
325	21	C	6 42	N	4 18	D	9 36	30	1	1	10 22	P	7 22	B	CAP	4
326	22	M.	6 43	N	4 17	D	9 34	29	1¾	1¾	11 02	P	8 30	C	CAP	5
327	23	Tu.	6 44	N	4 17	D	9 33	29	2½	2½	11 A M 34	N	9 43	E	AQR	6
328	24	W.	6 45	N	4 16	D	9 31	29	3¼	3½	12 P M 02	M	10 P M 54	F	AQR	7
329	25	Th.	6 46	N	4 16	D	9 30	29	4¼	4½	12 28	K	—	—	PSC	8
330	26	Fr.	6 48	N	4 15	D	9 27	28	5	5½	12 53	J	12 A M 06	G	PSC	9
331	27	Sa.	6 49	N	4 15	D	9 26	28	6	6½	1 17	I	1 19	I	ARI	10
332	28	C	6 50	N	4 14	D	9 24	28	7	7½	1 44	G	2 34	J	ARI	11
333	29	M.	6 51	N	4 14	D	9 23	27	8	8½	2 16	F	3 52	L	ARI	12
334	30	Tu.	6 52	N	4 13	D	9 21	27	8¾	9½	2 P M 51	D	5 A M 12	M	TAU	13

NOVEMBER hath 30 days. [1971

Indian Summer is here (the 11th to 20th)
Supposedly warm, after or before cold, rain or snow.
But many years no Indians or hot spells show.
We think the facts this old legend belieth.

D. M.	D. W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓
1	M.	All Saints ☾ in Peri. • Hol. La. {11.2 10.4	Rain
2	Tu.	All Souls • The Full Hunter's Moon ☾ runs high	changes
3	W.	Year's highest A.M. tides Nov. 3 & 4 {11.9 10.4	to Fall's
4	Th.	♄☾ • Hol. Okla. • {11.9 —	first snow.
5	Fr.	Fawke's plot's not forgot • Tides {10.2 11.6	A dull
6	Sa.	Noah born B.C. 2948 ☌♀Ψ Tides {9.8 11.1	lull
7	C	22nd a.☾. Tides {9.3 10.5	persists
8	M.	☌☿Ψ • ☾ at ♉ Tides {8.9 9.9	with
9	Tu.	Good for travel and thieving {8.5 9.3	heavy mists.
10	W.	1775-U.S. Marine Corps fd. • Stanley fd. Livingston	Violent
11	Th.	Armistice Day-1918 Tides {8.4 8.6	storms
12	Fr.	Saint Martin • Sadie (13th) Hawkins • ☾ on Eq.	are felt
13	Sa.	Indian Summer is *always* Nov. 13-20-by tradition {8.8 8.4	in the
14	C	24th a.☿. • ☌♀♃ • ☌☿♃ • ☾ in Apo.	
15	M.	☌☉☾ • Methuselah D. 2349 B.C. •	wheat belt.
16	Tu.	☾ rides low • ☌♀☿	Knock Knock
17	W.	1303-Sea coal 1st used	who's there?
18	Th.	*An unbaited hook catches no fish* {9.8 8.6	Two storms
19	Fr.	☌♃☾ • ☌♀☾ • ☌☿☾	from the
20	Sa.	Now prune your vines • Tides {8.6 9.8	East, a
21	C	24th a.☾. • Mayflower Compact	foul pair.
22	M.	J.F.K. 1963 • Saint Cecilia Tides {8.4 9.7	Snow
23	Tu.	☿Gr. El. E. 20° • ☾ at ♌ • Hol. Md. {8.4 9.6	now
24	W.	[25th ☌Ψ☉ • ☌♄☉] {8.5 9.4	arrives
25	Th.	Thanksgiving Day {8.7 9.3	making
26	Fr.	☌☌☾ • ♄ Ev'g. star • ☾ on Eq.	beautiful
27	Sa.	"*To be safe be not secure*" Tides {9.6 9.8	Cur-
28	C	Advent ☩. • Tides {10.1 9.4	rier
29	M.	Don't marry until Jan. 13 • Tides {10.7 9.6	& Ives.
30	Tu.	Andrew Apostle • ☾ in Peri. • ☾ runs high • {11.1 9.7	

Two full moons next month mean hard winter

Farmer's Calendar.

Beyond the fact that trees make shade, boards, houses, paper and forests to roam in, we are not often concerned with them. We should be. For forests are as vital to us as land and water. Without trees we would have only deserts, our climate would change and our civilization. Historically, cities have died, populations wandered when man destroyed the forests.

This will not happen to us. Whatever else we have not done wisely, we have learned to balance our forests with the demands upon them. It may not always be so.

We have 775 million acres of commercial forest, and restore—plant—or seed perhaps a million more. But with our ever-increasing population is the need for more reservoirs, parks, reservations, super-highways, industrial and urban expansion. For these we turn to forest lands. The Federal Government owns 234 million recreation acres in which forests are not harvested.

Paradoxically, as the forest acres shrink, demand for wood products increases. An expanding silvi-chemical industry processes and produces new items going into paints, concrete, and much else.

Besides the commercial forests there are 64 million acres of certified tree farms, largely private. Almost certainly these will be more productively managed. We shall not afford the luxury of great estates and idle forests.

1971] DECEMBER, Twelfth Month.

ASTRONOMICAL CALCULATIONS.

☉'s Declination.

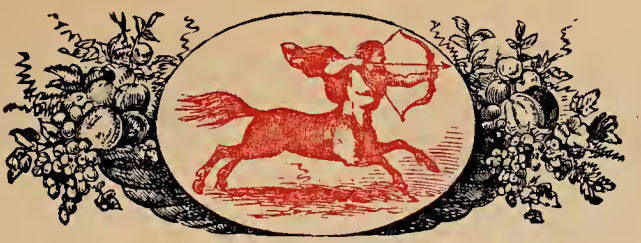
Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /	Days.	0 /
1	21s. 42	7	22 32	13	23 06	19	23 24	25	23 25		
2	21 51	8	22 39	14	23 10	20	23 25	26	23 23		
3	22 00	9	22 45	15	23 14	21	23 26	27	23 21		
4	22 09	10	22 51	16	23 17	22	23 27	28	23 19		
5	22 17	11	22 57	17	23 20	23	23 27	29	23 16		
6	22 25	12	23 02	18	23 22	24	23 26	30	23 13		

○ Full Moon, 2nd day, 2 h. 49 m., morning, W.
☾ Last Quarter, 9th day, 11 h. 03 m., morning, E.
● New Moon, 17th day, 2 h. 03 m., evening, W.
☽ First Quarter 24th day, 8 h. 36 m., evening, W.
○ Full Moon, 31st day, 3 h. 20 m., evening, E.

FOR POINTS OUTSIDE BOSTON SEE KEY LETTER CORRECTIONS — PAGE 14

Day of Year	Day of Month	Day of Week	☉ Rises h. m.	Key	☉ Sets h. m.	Key	Length of Days h. m.	Sun Fast m.	Full Sea, Boston. Morn h.	Full Sea, Boston. Eve. h.	☽ Rises h. m.	Key	☽ Sets h. m.	Key	☽ Place	☽ Age
335	1	W.	6 53	N	4 13	D	9 20	27	9¾	10¼	3 P M 38	B	6 A M 31	O	G'M	14
336	2	Th.	6 54	N	4 12	D	9 18	26	10½	11¼	4 35	B	7 43	P	—	—
337	3	Fr.	6 55	N	4 12	D	9 17	26	11½	—	5 41	B	8 45	P	G'M	15
338	4	Sa.	6 56	N	4 12	C	9 16	25	0	0¼	6 52	B	9 37	P	CAN	16
339	5	C	6 57	O	4 12	C	9 15	25	1	1	8 04	D	10 17	O	CAN	17
340	6	M.	6 58	O	4 12	C	9 14	25	1¾	2	9 12	E	10 50	N	LEO	18
341	7	Tu.	6 59	O	4 12	C	9 13	24	2½	2¾	10 18	F	11 18	L	LEO	19
342	8	W.	7 00	O	4 12	C	9 12	24	3½	3¾	11 P M 21	G	11 A M 40	K	VIR	20
343	9	Th.	7 01	O	4 12	C	9 11	23	4½	4½	—	—	12 P M 01	J	VIR	21
344	10	Fr.	7 02	O	4 12	C	9 10	23	5¼	5½	12 A M 22	I	12 21	I	VIR	22
345	11	Sa.	7 02	O	4 12	C	9 10	22	6	6½	1 23	J	12 41	G	LIB	23
346	12	C	7 03	O	4 12	C	9 09	22	7	7½	2 23	K	1 04	F	LIB	24
347	13	M.	7 04	O	4 12	C	9 08	21	7¾	8¼	3 25	L	1 27	E	LIB	25
348	14	Tu.	7 05	O	4 12	C	9 07	21	8½	9	4 29	N	1 57	D	SCO	26
349	15	W.	7 06	O	4 12	C	9 06	20	9¼	9¾	5 33	O	2 33	B	SCO	27
350	16	Th.	7 06	O	4 12	C	9 06	20	10	10½	6 34	P	3 17	B	SGR	28
351	17	Fr.	7 07	O	4 12	C	9 05	19	10½	11¼	7 30	P	4 11	B	SGR	29
352	18	Sa.	7 08	O	4 13	C	9 05	19	11¼	—	8 19	P	5 14	B	CAP	1
353	19	C	7 09	O	4 13	C	9 04	19	0	0	9 01	P	6 21	B	CAP	2
354	20	M.	7 09	O	4 13	C	9 04	18	0½	0¾	9 37	N	7 34	D	AQR	3
355	21	Tu.	7 10	O	4 14	C	9 04	18	1¼	1½	10 05	M	8 46	F	AQR	4
356	22	W.	7 10	O	4 14	C	9 04	17	2	2¼	10 33	L	9 58	G	PSC	5
357	23	Th.	7 10	O	4 14	C	9 04	17	3	3¼	10 57	J	11 P M 09	H	PSC	6
358	24	Fr.	7 10	O	4 15	C	9 05	16	3¾	4	11 21	I	—	—	PSC	7
359	25	Sa.	7 11	O	4 16	C	9 05	16	4¾	5	11 A M 46	G	12 A M 21	J	ARI	8
360	26	C	7 11	O	4 17	C	9 06	15	5½	6	12 P M 14	F	1 37	K	ARI	9
361	27	M.	7 11	O	4 17	C	9 06	15	6½	7	12 46	E	2 53	M	TAU	11
362	28	Tu.	7 12	O	4 18	C	9 06	14	7½	8¼	1 26	C	4 10	N	TAU	12
363	29	W.	7 12	O	4 18	C	9 06	14	8½	9¼	2 17	B	5 23	P	G'M	13
364	30	Th.	7 13	O	4 20	C	9 07	13	9½	10	3 18	B	6 28	P	G'M	14
365	31	Fr.	7 13	O	4 21	C	9 08	13	10¼	11	4 P M 27	B	7 A M 34	P	—	—

DECEMBER hath 31 days. [1971

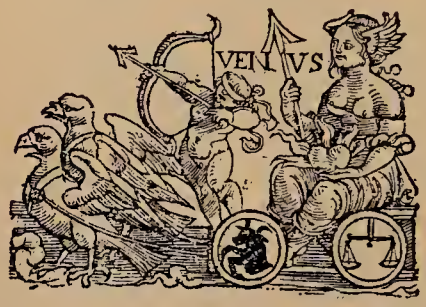


The solstice's a kind of grin and bear it season,
We can stand all this cold and dark we reason
If only for the promise we hope will come true
That spring is ahead, all pink and green and blue.

D.M.	D.W.	Dates, Feasts, Fasts, Aspects, Tide Heights	Weather ↓	Farmer's Calendar.
1	W.	♄☾ • 1917 Boys' Town founded	*Everyone's*	Within recent years Conservation Commissions have been created in many towns—especially in New Hampshire and Massachusetts.
2	Th.	The Full Beaver Moon • ☿ Stat. in R.A.	*humming*	
3	Fr.	1868 Jeff. Davis trial {11.5 —}	*Christmas*	
4	Sa.	Year's earliest sunsets (2-17) • {9.7 11.3}	*is coming.*	
5	C	2nd S. A. ☾at ♉ {9.4 10.9}	*Come on*	Their purpose is to promote and develop natural resources and protect the town's watersheds. The commissions' duties are to keep an index of all open areas within the town, and to consider how best to use them. Included are marshlands, swamps and wetlands.
6	M.	Saint Nicholas • Halifax fire 1917 Tides {9.2 10.3}	*mate*	
7	Tu.	Pearl Harbor disaster, 1941 • Hol. Del. • {8.9 9.7}	*let's go*	
8	W.	Conception Virgin Mary • Tides {8.7 9.1}	*for a*	
9	Th.	♂☌☉ • ☾ on Eq. Tides {8.5 8.6}	*skate.*	
10	Fr.	Albatross nests • Hol. Wyo. • Tides {8.5 8.2}	*Let this*	Lands may be acquired by gift or purchase; contracts of lease or easements, or through tax delinquency. But lands may not be condemned for these purposes. The commission acts as the town's or city's agent, and the lands acquired become town property. Citizens' conservation organizations work with the commissions.
11	Sa.	[12 th ♂☍☾ • ☾ in Apo.] Tides {8.6 8.0}	*storm*	
12	C	3rd S. A. • ♂ ☿ ☉ Inf.	*unravel*	
13	M.	Hanukah • ☾rides low	*before you*	
14	Tu.	Ember days 15, 17, & 18 • [15 th ♂♆☾]	*travel.*	
15	W.	Bill of Rights • Halcyon days (15-20) bring calm seas	*Fill up*	
16	Th.	1950 Nat'l emergency {9.6 8.8}	*your cup*	
17	Fr.	*Plough deep for corn to sell and to keep*	*MacDonald.*	
18	Sa.	1968-Storm makes many snowballs-Howe, Ind.	*With this*	
19	C	4th S. A. [20 th ♂♀☾]	*cold*	A most common example of open space lands are wetlands. To drain or fill such lands for dump sites or house developments is to destroy their proper function as wet links to the region's water table, and a sponge to hold and absorb flood waters.
20	M.	St. Thomas, Apostle (21st) • Shortest days 19-23	*the jig*	
21	Tu.	Forefathers' Day ☾ at ♊ {8.9 10.1}	*is up.*	
22	W.	Winter Begins 7.24 A.M. • ☿ Stat. in R.A.	*Imagine*	
23	Th.	[22 nd ☉ Ent. Capri. • 1968 Pueblo seized]	*the trouble*	
24	Fr.	♂☽☾ • ☾ on Eq. Tides {9.5 9.4}	*if this*	A fine stand of trees may be preserved as a town forest or recreation area. Wild lands adjacent to a school may well serve as nature classrooms, other areas as wildlife sanctuaries. Worn out and eroding pastures may be planted to shrubs and trees. Zoning can scarcely consider such problems.
25	Sa.	Christmas D. {9.7 9.1}	*snow had*	
26	C	1st S. a. Ch. ☾ Runs High	*been double.*	
27	M.	"St. John Apostle" • 1960 Robin bec. nat'l bird	*Icy &*	
28	Tu.	Holy Innocents • ☾ in Perl. • {10.5 8.9}	*cruel*	
29	W.	With the old Almanac and the old year	♄☾ *the year*	
30	Th.	Leave thy old vices tho' ever so dear • {11.0 9.1}	*end*	
31	Fr.	The Full Wolf Moon • Tides {11.1 9.2}	*rule.*	

The Planets, 1971

Below are given the times of rising or setting of the Planets named, on the first, eleventh and twenty-first of each month. The time of the rising or setting of any one of said Planets between the days named may be found with sufficient accuracy by interpolation. For explanation of keys (used in adjusting times given to your town) see page 14. Keys appear below in capital letters.



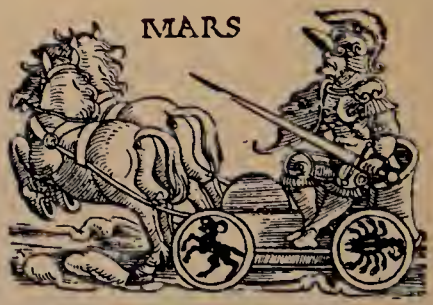
VENUS

Venus is a Morning Star until August 27 when it comes to its Superior Conjunction. After August 27 it is an Evening Star. Its greatest brilliance is reached in the morning sky on July 21. It will have its greatest elongation west on January 20, when it will lie 47° west of the Sun. Greatest elongation east will not occur until after the year ends.

JAN	1st	rises	3 35 A.M.	L	MAY	1st	rises	3 39 A.M.	I	SEP	1st	sets	6 26 P.M.	K
	11th	"	3 35 A.M.	M		11th	"	3 28 A.M.	G		11th	"	6 11 P.M.	J
	21st	"	3 47 A.M.	M		21st	"	3 17 A.M.	G		21st	"	5 56 P.M.	H
FEB	1st	rises	4 00 A.M.	N	JUN	1st	rises	3 10 A.M.	F	OCT	1st	sets	5 50 P.M.	H
	11th	"	4 09 A.M.	N		11th	"	3 04 A.M.	E		11th	"	5 39 P.M.	G
	21st	"	4 17 A.M.	N		21st	"	3 02 A.M.	D		21st	"	5 29 P.M.	F
MAR	1st	rises	4 40 A.M.	N	JUL	1st	rises	3 10 A.M.	C	NOV	1st	sets	5 23 P.M.	D
	11th	"	4 42 A.M.	M		11th	"	3 20 A.M.	B		11th	"	5 22 P.M.	D
	21st	"	4 18 A.M.	L		21st	"	3 37 A.M.	C		21st	"	5 27 P.M.	B
APR	1st	rises	4 11 A.M.	L	AUG	1st	rises	4 00 A.M.	D	DEC	1st	sets	5 39 P.M.	B
	11th	"	4 02 A.M.	K		11th	"	4 24 A.M.	E		11th	"	5 58 P.M.	B
	21st	"	3 51 A.M.	I		21st	sets	6 36 P.M.	L		21st	"	6 19 P.M.	C
											31st	"	6 44 P.M.	D

MARS

Mars is a Morning Star until it reaches Opposition on August 10, and an Evening Star for the rest of the year. Mars is a third magnitude star in the morning sky as the year begins, and brightens steadily until August 11 when it is closest to the Earth and appears as a first magnitude star. It then grows steadily fainter until the end of the year.



JAN	1st	rises	2 59 A.M.	M	MAY	1st	rises	12 40 A.M.	N	SEP	1st	sets	2 38 A.M.	C
	11th	"	2 53 A.M.	M		11th	"	12 09 A.M.	N		11th	"	1 58 A.M	
	21st	"	2 45 A.M.	N		21st	"	11 56 P.M.	N		21st	"	1 26 A.M.	D
FEB	1st	rises	2 40 A.M.	N	JUN	1st	rises	11 30 P.M.	N	OCT	1st	sets	1 01 A.M.	D
	11th	"	2 30 A.M.	N		11th	"	11 04 P.M.	N		11th	"	12 40 A.M.	E
	21st	"	2 21 A.M.	O		21st	"	10 33 P.M.	M		21st	"	12 24 A.M.	E
MAR	1st	rises	2 13 A.M.	O	JUL	1st	rises	10 04 P.M.	M	NOV	1st	sets	12 10 A.M.	F
	11th	"	2 01 A.M.	P		11th	"	9 30 P.M.	N		11th	"	11 59 P.M.	F
	21st	"	1 49 A.M.	P		21st	"	8 52 P.M.	N		21st	"	11 49 P.M.	G
APR	1st	rises	1 33 A.M.	P	AUG	1st	rises	8 08 P.M.	N	DEC	1st	sets	11 41 P.M.	G
	11th	"	1 18 A.M.	O		11th	sets	4 27 A.M.	C		11th	"	11 34 P.M.	H
	21st	"	12 59 A.M.	N		21st	"	3 19 A.M.	C		21st	"	11 27 P.M.	I
											31st	"	11 21 P.M.	I

JUPITER

Jupiter is a Morning Star until it comes to Opposition on May 23 and again after it passes Conjunction on Dec. 10. It is an Evening Star during tbe period from May 23 to Dec. 10. Jupiter is at its brightest from April through June. When at Opposition, Jupiter will lie about 405,000,000 miles from Eartb.

Jan	1st	rises	3 57 A.M.	M	May	1st	rises	8 39 P.M.	N	Sep	1st	sets	9 36 P.M.	D
	11th	"	3 27 A.M.	N		11th	"	7 53 P.M.	N		11th	"	9 00 P.M.	D
	21st	"	2 56 A.M.	N		21st	"	7 08 P.M.	N		21st	"	8 15 P.M.	D
Feb	1st	rises	2 21 A.M.	N	Jun	1st	sets	3 44 A.M.	D	Oct	1st	sets	7 52 P.M.	D
	11th	"	1 48 A.M.	N		11th	"	3 00 A.M.	D		11th	"	7 17 P.M.	D
	21st	"	1 04 A.M.	N		21st	"	2 18 A.M.	E		21st	"	6 44 P.M.	D
Mar	1st	rises	12 45 A.M.	N	Jul	1st	sets	1 36 A.M.	E	Nov	1st	sets	5 59 P.M.	D
	11th	"	12 08 A.M.	N		11th	"	12 55 A.M.	E		11th	"	5 37 P.M.	D
	21st	"	11 30 P.M.	N		21st	"	12 14 A.M.	E		21st	"	5 06 P.M.	D
Apr	1st	rises	10 46 P.M.	N	Aug	1st	sets	11 21 A.M.	E	Dec	1st	sets	4 35 P.M.	D
	11th	"	10 05 P.M.	N		11th	"	10 54 A.M.	E		11th	rises	7 01 A.M.	O
	21st	"	9 22 P.M.	N		21st	"	10 16 A.M.	E		21st	"	6 23 A.M.	O
											31st	"	6 03 A.M.	O

SATURN

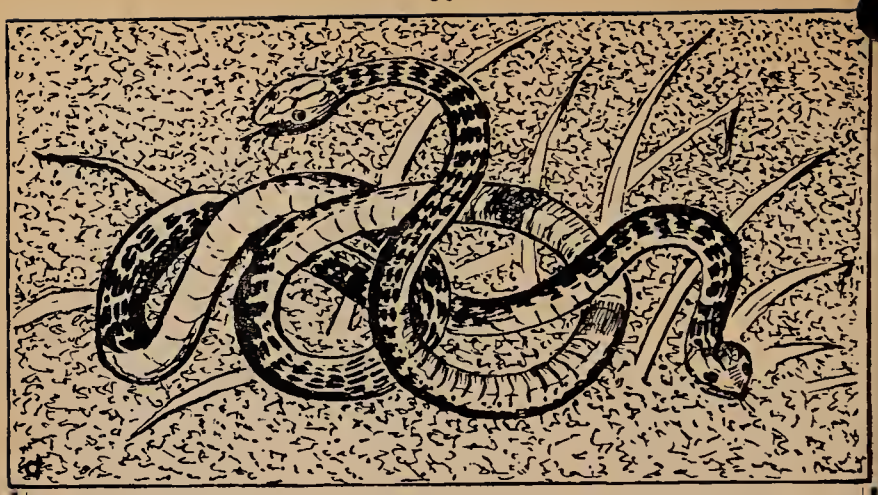
Saturn is an Evening Star until it reacbes Conjunction on May 17, and again from the time of its Opposition on November 25 until tbe year's end. From May 17 to November 25 it adorns tbe sky as a Morning Star. Saturn's greatest brilliance for tbe year is reached during the month before and the month after Opposition. Its closest approacb to the Earth, near Opposition, is at a distance of 752,000,000 miles.

Jan	1st	sets	2 51 A.M.	L	May	1st	sets	7 41 P.M.	M	Sep	1st	rises	10 09 P.M.	D
	11th	"	2 11 A.M.	L		11th	"	7 08 P.M.	M		11th	"	9 31 P.M.	D
	21st	"	1 32 A.M.	L		21st	rises	4 22 A.M.	E		21st	"	8 53 P.M.	D
Feb	1st	sets	12 50 A.M.	L	Jun	1st	rises	3 43 A.M.	E	Oct	1st	rises	8 13 P.M.	D
	11th	"	12 12 A.M.	L		11th	"	3 08 A.M.	E		11th	"	7 36 P.M.	D
	21st	"	11 36 P.M.	L		21st	"	2 32 A.M.	E		21st	"	6 51 P.M.	D
Mar	1st	sets	11 08 P.M.	L	Jul	1st	rises	1 56 A.M.	E	Nov	1st	rises	6 06 P.M.	D
	11th	"	10 32 P.M.	L		11th	"	1 21 A.M.	E		11th	"	5 33 P.M.	E
	21st	"	9 58 P.M.	M		21st	"	12 45 A.M.	E		21st	"	4 42 P.M.	E
Apr	1st	sets	9 20 P.M.	M	Aug	1st	rises	12 05 A.M.	D	Dec	1st	sets	6 19 A.M.	M
	11th	"	8 48 P.M.	M		11th	"	11 28 P.M.	D		11th	"	5 35 A.M.	M
	21st	"	8 14 P.M.	M		21st	"	10 50 P.M.	D		21st	"	4 52 A.M.	M
											31st	"	4 10 A.M.	M

MERCURY

Mercury is most easily seen when near its greatest elongation. For observation just after sundown the best dates will be on or about the dates of its greatest eastern elongation, March 31, July 29, and Nov. 25, when it will set $1^h\ 06^m$, $1^h\ 53^m$, and $1^h\ 20^m$ respectively after the sun. For observation just before sunrise the best dates will be on or about those of its greatest western elongation, Jan. 18, May 17, and Sept. 12, when it will rise $1^h\ 27^m$, $1^h\ 40^m$, and $1^h\ 10^m$, respectively before the sun. Mercury will be in Superior Conjunction on March 6, June 21, and October 8, and in Inferior Conjunction on April 19, August 26, and December 12.

(A Planet is called Morning Star when it is above the horizon at sunrise, and Evening Star when it is above the horizon at sunset. More precisely, it is a Morning Star when it is less than 180° west of the Sun in right ascension and Evening Star when it is less than 180° east. When the planet is near conjunction or opposition, the distinction is unimportant.)



THE DOUBLE-HEADED SNAKE OF NEWBURY

J. G. Whittier

Far away in the twilight time
Of every people, in every clime,
Dragons and griffins and
monsters dire,
Born of water, and air, and fire,
Or nursed, like the Python, in the
mud
And ooze of the old Deucalion
flood,
Crawl and wriggle and foam with
rage,
Through dusk tradition and
ballad age.
So from the childhood of
Newbury town
And its time of fable the tale
comes down
Of a terror which haunted bush
and brake,
The Amphisbaena, the Double
Snake!

. . . . . .

Whether he lurked in the
Oldtown fen
Or the gray earth-flax of the
Devil's Den,
Or swam in the wooded
Artichoke,
Or coiled by the Northman's
Written Rock,
Nothing on record is left to show;
Only the fact that he lived, we
know,
And left the cast of a double head
In the scaly mask which he
yearly shed,
For he carried a head where his
tail should be,
And the two, of course, could
never agree,
But wriggled about with main
and might,
Now to the left and now to the
right;
Pulling and twisting this way
and that,
Neither knew what the other was
at.

. . . . . .

Far and wide the tale was told,
Like a snowball growing while it
rolled.
The nurse hushed with it the
baby's cry;
And it served, in the worthy
minister's eye,
To paint the primitive serpent by.
Cotton Mather came galloping
down
All the way to Newbury town,
With his eyes agog and his ears
set wide,
And his marvellous inkhorn at
his side;
Stirring the while in the shallow
pool
Of his brains for the lore he
learned at school,
To garnish the story, with here a
streak
Of Latin, and there another of
Greek:
And the tales he heard and the
notes he took,
Behold! are they not in his
Wonder-Book?

OUTDOOR PLANTING TABLE, 1971

The best time to plant flowers and vegetables which bear crops above the ground is during the LIGHT of the moon; that is, between the day the moon is new to the day it is full. Flowers and vegetables which bear crops below ground should be planted during the DARK of the moon; that is, from the day after it is full to the day before it is new again. These moon days for 1971 are given in the "Moon Most Favorable" columns below. See pages 24–46 for the exact times and days of the new and full moons. On these pages you will also find in the "Moon's Place" columns, the Zodiac signs for each day. Those most favorable for planting flowers and vegetables which bear crops above ground are ARI, CNC, LIB, AQR, and PSC. The only sign which is good for flowers or vegetables which bear crops below ground is TAU.

The three columns below are for approximately the 42°, 39°, and 34° Latitude parallels. If the latitude of your town (see pages 94–112) is, for example, halfway between 42° and 39°, then you would plant on dates halfway between those given in the 42° column and the 39° column, etc. For every 500 feet above sea level, plant one week later than dates given below.

Above Ground Crops Marked (*) Plant Bet. New and Full Moon— All Others Bet. Full and New E means Early; L means Late.	42° Boston, Chicago, Des Moines, etc.		39° Wash., Cinc., St. Louis, Kan. City		34° Atlanta, Los Angeles	
	Plant Anytime Between Dates Below	Moon Most Favorable Between	Plant Anytime Between Dates Below	Moon Most Favorable Between	Plant Anytime Between Dates Below	Moon Most Favorable Between
*Barley	5-15/6-21	5, 24-31	3-15/4-7	3, 26-31	2-15/3-7	2, 25-28
*Beans (E)	5-7/6-21	5, 7-10	4, 15-30	4, 24-30	3-15/4-7	3, 26-31
(L)	6-15/7-15	6, 22-30	7, 1-21	7, 1-8	8, 7-30	8, 20-30
Beets (E)	5, 1-15	5, 10-24	3-15/4-3	3, 12-26	2, 7-29	2, 10-25
(L)	7-15/8-15	7, 9-22	8, 15-30	8, 7-20	9, 1-30	9, 5-19
*Broccoli (E)	5, 15-30	5, 24-30	3, 7-30	3, 7-10	2-15/3-15	2, 25-28
(L)	6-15/7-7	6, 22-30	8, 1-20	8, 1-4	9, 7-30	9, 19-30
*Brussels Spr.	5, 15-30	5, 24-30	3-7/4-15	3, 7-10	2-11/3-20	2, 25-28
*Cabbage Pl.	5, 15-30	5, 24-30	3-7/4-15	3, 7-10	2-11/3-20	2, 25-28
Carrots (E)	5, 15-30	5, 24-31	3, 7-31	3, 26-31	2-15/3-7	2, 25-28
(L)	6-15/7-21	6, 22-30	7, 7-30	7, 22-30	8-1/9-7	8, 1-4
*Cauliflower Pl. (E)	5, 15-30	5, 24-30	3-15/4-7	3, 7-10	2-15/3-7	2, 25-28
(L)	6-15/7-21	6, 22-30	7-1/8-7	7, 1-8	8, 7-30	8, 20-30
Celery (E)	5-15/6-30	5, 15-23	3, 7-30	3, 10-25	2, 15-28	2, 15-24
(L)	7-15/8-15	7, 15-21	8-15/9-7	8, 15-19	9, 15-30	9, 15-18
*Corn, Sw. (E)	5-10/6-15	5, 24-31	4, 1-15	4, 1-9	3, 15-29	3, 26-29
(L)	6, 15-30	6, 22-30	7, 7-21	7, 7	8, 7-30	8, 20-30
*Cucumber	5-7/6-20	5, 7-9	4-7/5-15	4, 7-9	3-7/4-15	3, 7-10
*Eggplant Pl.	6, 1-30	6, 1-7	4-7/5-15	4, 7-9	3-7/4-15	3, 7-10
Endive (E)	5, 15-30	5, 10-23	4-7/5-15	4, 10-23	2-15/3-20	2, 15-24
(L)	6, 7-30	6, 8-21	7-15/8-15	7, 15-21	8-15/9-7	8, 15-19
*Flowers (All)	5-7/6-21	5, 7-9	4, 15-30	4, 7-9	3-15/4-7	3, 7-10
*Kale (E)	5, 15-30	5, 24-30	3-7/4-7	3, 7-10	2-11/3-20	2, 25-28
(L)	7-1/8-7	7, 1-7	8, 15-31	8, 20-30	9, 7-30	9, 19-30
Leek Pl.	5, 15-30	5, 15-23	3-7/4-7	3, 11-25	2-15/4-15	2, 15-24
*Lettuce	5-15/6-30	5, 24-30	3, 1-31	3, 7-10	2-15/3-7	2, 25-28
*Melon (Musk)	5-15/6-30	5, 24-30	4-15/5-7	3, 7-10	3-15/4-7	2, 25-28
Onion Pl.	5-15/6-7	5, 15-23	3, 1-31	3, 11-25	2, 1-28	2, 15-24
*Parsley	5, 15-30	5, 24-30	3, 1-31	3, 7-10	2-20/3-15	2, 25-28
Parsnip	4, 1-30	4, 10-23	3, 7-31	3, 11-24	1-15/2-4	1, 15-24
*Peas (E)	4-15/5-7	4, 24-30	3, 7-31	3, 7-10	1-15/2-7	1, 26-31
(L)	7, 15-30	7, 22-30	8, 7-31	8, 20-31	9, 15-30	9, 19-30
*Pepper Pl.	5-15/6-30	5, 24-30	4, 1-30	3, 7-10	3, 1-20	2, 25-28
Potato	5, 1-15	5, 10-15	4, 1-15	4, 10-15	2-10/3-1	2, 10-24
*Pumpkin	5, 15-30	5, 24-30	4, 23/5-15	3, 7-10	3, 7-20	2, 25-28
Radish (E)	4, 15-30	4, 15-23	3, 7-31	3, 11-21	1-21/3-1	1, 21-25
(L)	8, 15-30	8, 15-19	9, 7-30	9, 7-19	10, 1-21	10, 4-18
*Spinach (E)	5, 15-30	5, 24-30	3-15/4-20	3, 7-10	2-7/3-15	2, 25-28
(L)	7-15/9-7	7, 22-30	8-1/9-15	8, 1-4	10, 1-21	10, 1-3
*Summer Squash	5-15/6-15	5, 24-30	4-15/5-1	3, 7-10	3-15/4-15	2, 25-28
*Swiss Chard	5, 1-30	5, 1-9	3-15/4-15	3, 26-31	2-7/3-15	2, 7-9
*Tomato Pl.	5, 15-30	5, 24-30	4, 7-30	3, 7-10	3, 7-20	2, 25-28
Turnip (E)	4, 7-30	4, 10-23	3, 15-30	3, 15-25	1-20/2-15	1, 20-25
(L)	7-1/8-15	7, 8-21	8, 1-20	8, 5-19	9-1/10-15	9, 4-18
*Wheat (Winter)	8, 11-15	8, 20-25	9-15/10-20	9, 19-24	10-15/12-7	10, 19-25
(Spring)	4, 7-30	4, 7-9	3, 1-20	3, 1-10	2, 15-28	2, 25-28

Aurorae Borealis (Northern Lights)

During the following periods, readers in the northern parts of the United States (and particularly Canada and Alaska) should be able to see Northern Lights displays, if the nights are clear in their particular areas:

1970 Nov. 1-10
1971 Mar. 9-19
Apr. 15-25
July 15-20
Sept. 7-15
Sept. 27-Oct. 2
Dec. 9-18

During those periods given in **bold face**, the expected Northern Lights might be visible from much lower latitudes, corresponding to the Middle to Southern states.

Private airplane pilots may experience radio interference and erratic magnetic compass readings during the periods in **bold face**.

BRIGHT STARS, 1971

The upper table shows the Eastern Standard Time when each star transits the meridian of Boston on the dates shown, i.e. lies directly above the horizon's south point there, and its altitude above that point at transit. The time of transit on any other date differs from that on the nearest date listed by approximately four minutes of time for each day's difference between the dates. For a place outside Boston the local standard time of the star's transit is found by correcting the time at Boston by the value of key letter "I" for the place. (See footnote.)

Star	Constellation	Magnitude	Time of Transit (E.S.T.) **Bold face — PM; Light face — AM** Jan. 1	Mar. 1	May 1	Jul. 1	Sep. 1	Nov. 1	Alt.
Altair	Aquila	0.9	**12 53**	**9 01**	**5 00**	**12 59**	**8 53**	**4 54**	
Fomalhaut	Psc. Austr.	1.3	**4 00**	**12 08**	8 07	4 06	**12 00**	**8 01**	14.1
Aldebaran	Taurus	1.1	**9 38**	**5 46**	**1 45**	9 44	5 38	1 49	58.9
Rigel	Orion	0.3	**10 17**	**6 25**	**2 24**	10 23	6 07	2 28	34.1
Bellatrix	Orion	1.7	**10 28**	**6 36**	**2 35**	10 34	6 18	2 39	48.7
Betelgeuse	Orion	Var.	**10 58**	**7 06**	**3 05**	11 04	6 48	3 09	49.8
Sirius	Can. Maj.	−1.6	**11 48**	**7 56**	**3 55**	11 54	7 38	3 59	25.5
Procyon	Can. Min.	0.5	12 41	**8 49**	**4 48**	12 47	8 31	4 52	47.7
Pollux	Gemini	1.2	12 48	**8 56**	**4 55**	12 54	8 38	4 59	70.5
Regulus	Leo	1.3	3 11	**11 19**	**7 18**	**3 17**	11 01	7 22	54.5
Spica	Virgo	1.2	6 28	2 36	**10 40**	**6 34**	**2 18**	10 39	31.4
Arcturus	Bootes	0.2	7 18	3 26	**11 30**	**7 24**	**3 08**	11 29	61.7
Antares	Scorpius	1.2	9 32	5 40	1 44	**9 38**	**5 22**	**1 43**	16.0

Risings and Settings. The times of the star's rising and setting at Boston on any date are found by applying the interval shown to the time of the star's transit on that date, subtracting it for the star's rising, adding it for its setting. These times for a place outside Boston are found by correcting the times found for Boston by the values of the key letters shown. (See footnote.) The directions in which the star rises and sets shown for Boston are generally useful throughout the United States.

Star	Int. h m	Rising Key	Rising Dir.	Setting Key	Setting Dir.	Star	Int. h m	Rising Key	Rising Dir.	Setting Key	Setting Dir.
Altair	6 36	G	EbN	K	WbN	Procyon	6 23	H	EbN	J	WbN
Fomalhaut	3 59	Q	SE	A	SW	Pollux	8 01	A	NE	Q	NW
Aldebaran	7 06	E	ENE	M	WNW	Regulus	6 49	F	EbN	L	WbN
Rigel	5 33	K	EbS	G	WbS	Spica	5 23	L	EbS	F	WbS
Bellatrix	6 27	H	EbN	J	WbN	Arcturus	7 19	D	ENE	N	WNW
Betelgeuse	6 31	G	EbN	K	WbN	Antares	4 17	P	SEbE	B	SWbW
Sirius	5 00	M	ESE	E	WSW						

NOTE: The values of key letters are given in the tables within the Regional Forecasts beginning on page 90.

WIND CHILL TABLE

WIND SPEED

TEMP.	10	20	30	40
+50°	40	32	28	26
+30°	18	4	−2	−6
+20°	4	−10	−18	−21
+10°	−9	−25	−33	−37
0°	−21	−30	−48	−53
−10°	−33	−53	−63	−69
−20°	−46	−67	−79	−85

The above table shows how, as wind speed increases, the temperature against your body falls. At 20° above in a 10 mph wind you experience 4° above exposure. Properly dressed you can take down to about 20 below. Below that use extreme caution.

Courtesy, Army, Navy, Air Force

At 10 mph you just feel wind on face; at 20 small branches move, dust or snow raised; at 30 large branches move, wires whistle; at 40, whole trees move.

DEGREE DAYS

Most newspapers carry this term along with daily temperatures, humidity, etc. It signifies the number of degrees that the mean temperature for that day fell below 65.

Example: If the highest temperature for any given day were 52, and the lowest 39, the **mean** would be 46. As 46 is 19 below 65, the Degree Day figure for that day would be 19. These degree days are also added together for each day after Sept. 1 when the heating season begins and compared with normal.

DAY FINDER

Calendar to find day name for any given date

Key
Jan. 1
(*leap yr. 0*)
Feb. 4
(*leap yr. 3*)
Mar. 4
Apr. 0
May 2
June 5
July 0
Aug. 3
Sept. 6
Oct. 1
Nov. 4
Dec. 6

To find the day name for any given date to mid-18th century, proceed as follows: add the following four numbers together to arrive at the *Sum*—the last two digits of the year, ¼ of the last two digits (discard excess if it doesn't come out even), the given date, and the month-key from the column at the left. Divide the Sum by 7 and the number left over is the day of the week. If it comes out even, the day is Saturday. If you go back past 1900 add 2 to the Sum before dividing; past 1800 add 4, etc. except don't go beyond 1753.

EXAMPLE: Dayton Flood was on Tuesday, March 25, 1913.

Last 2 digits of year:	13
¼ of " " " " :	3
Given day of month:	25
Key number for March:	4
	45

6
7/45
42
3 = third day of week (Tuesday)

STONE-AGE POTION TO SPACE-AGE DRUG

Mrs. Jack A. Dorland
Courtesy The News of the Federated Garden Clubs
of New York State Inc.

A 3500-year-old scroll tucked between the knees of an Egyptian mummy has been found in a Thebes tomb. When this time-tattered scroll, *Papyrus Ebers* — the oldest medical manuscript known to man — was translated, it revealed startling information about the art of healing with plants as practiced by early man. Remarkably, many of the 877 plant remedies listed in Papyrus Ebers and in other resurrected materia medica of an even earlier date are listed in today's *U.S. Pharmacopoeia.* Even more remarkable is the fact that many Stone-Age potions have pointed the direct way toward Space-Age drugs.

A prime example of this is the 5000-year-old Hindu "cure for lunacy," which led to the discovery of tranquilizers — the modern treatment for mental illness. Mental disturbance, the Number One health problem of our century, fills half of the hospital beds in the world. In the United States alone, there are 17 million mental patients. The cost of their care? Three billion dollars annually!

Modern science knew no cure for mental illness but since the dawn of history Hindus have cured fits of depression and even lunacy, by using powdered root of *Rauwolfia serpentina,* an azalea-like shrub growing in the Himalayan foothills. It is alleged that Mohandas K. Gandhi dunked the bitter Rauwolfia root in his tea for a sedative. In 1952 reserpine was extracted from Rauwolfia and it opened up an entirely new approach for treating mental illness. In cases of severe mental disturbance reserpine not only calms patients but by reducing their blood pressure promotes cure. Here then is one Stone-Age potion that hopped nonstop from humble Hindu mudhut to Space-Age penthouse.

Disease has always been man's archenemy harassing him all along his tortuous path from superstitious hairy-creature crouched in a cave to sophisticated modern ensconced in a skyscraper. During all of his existence man

has used the plant kingdom as his medicine chest. At the turn of this century 80% of all his medicines were plant derived. Today, in our scientific age of atom bomb and moon rocket, 48% of all his medicines are still plant derived. Even more dramatic is the return to plant remedies during the past two decades — a revival constituting the most intense "plant boom" in the history of man. One scientist described this boom as a kind of "belated homage being paid to the primitive healer." There is no scoffing anymore at ancient potions. Today top medical experts are scientifically assessing these potions.

Garlic, *Allium sativum*, is one Stone-Age remedy that was recently put through the Space-Age research wringer and came up a winner. The garlic bulb was not only honored in ancient times as a "cure-all" but was worshipped in religious ceremonies and even worn around the neck as a talisman to ward off witches, demons, and vampires. In a 5000-year-old Egyptian pyramid there is an inscription, chiseled in stone, recording the vast amount of garlic consumed by the pyramid builders "to keep them free from disease." In 1948 researchers extracted allicin from garlic. Allicin proved to be an effective antibiotic against the very bacteria that caused many of the serious diseases of the early Egyptians such as: scarlet fever, typhoid fever, tuberculosis, dysentery, and diphtheria. No longer does one wonder why the ancient Egyptians glorified this lowliest of bulbs, the garlic, in their mightiest of works, the pyramids.

Another plant that dates back to early Egyptian medicine is squill, *Urginea maritima*, which was and still is used as a heart stimulant. Squill, the herb onion that grows in the sand dunes around the Mediterranean Sea, is commended as a heart tonic by the 3500-year-old Papyrus Ebers. Squill's huge bulb, which at maturity often weighs five pounds and measures a foot in diameter, contains a substance that stimulates the human heart in the same way as does digitalin (the extract from purple foxglove, *Digitalis purpurea*). An interesting feature about squill is that its digitalis-like ingredient is located in an inner-layer of the many-layered bulb; all other parts of the bulb are inert. How an early Egyptian drug-seeker ever hit upon such a well-hidden secret confounds the imagination but quickens the heart.

Henbane is a witch's weed that broomsticked its way from Stone-Age to Space-Age. Modern research shows that the muttering old hags of history knew exactly what they were doing. Stirred into their boiling cauldrons, along with eye-of-newt and wool-of-bat, was the equally ridiculous skin-of-toad. Only skin-of-toad, science now knows, is not so ridiculous. Where did science find one of our most potent modern hallucinogens, bufotenin? Why, in skin-of-toad! (Pity the poor amphibians when the hippies hear about this.)

No list of Stone-Age potions and Space-Age drugs would be complete without mention of the pain-killers, the greatest medical blessing ever bestowed on modern man by ancient man. Opium, dis-

Continued on page 134

PART TWO

Secrets of the Zodiac & Planets

(Being the interpretation, astrologic, and just for fun, Of all serious scientific data in Part One.)

FAMOUS DEBOWELLED MAN OF THE SIGNS

♈ Aries, head. ARI
Mar. 21-Apr. 19

♉ Taurus, neck. TAU
Apr. 20-May 20

♊ Gemini, arms. G'M
May 21-June 20

♋ Cancer, breast. CNC
June 21-July 22

♌ Leo, heart. LEO
July 23-Aug. 22

♍ Virgo, belly. VIR
Aug. 23-Sept. 22

♎ Libra, reins. LIB
Sept. 23-Oct. 22

♏ Scorpio, secrets. SCO
Oct. 23-Nov. 21

♐ Sagittarius, thighs. SGR
Nov. 22-Dec. 21

♑ Capricornus, knees. CAP
Dec. 22-Jan. 19

♒ Aquarius, legs. AQR
Jan. 20-Feb. 18

♓ Pisces, feet. PSC
Feb. 19-Mar. 20

Man of the Signs used by Abe Weatherwise, 1784

These signs, abbreviated, appear for each day on pages 24-46. Their meaning is given on pages 56-59. The illustrations, pages 57-59, are the actual patterns as seen in the sky by the ancients (see Hygini, Augusti Liberti, 1570).

The ancients believed (but we do not) that from the knowledge of the location of **each planet** in the heavens at the exact hour of one's birth one can foresee what kind of a life a child will have, what are the child's inclinations, and what sort of education will best serve the child. The heavens (called the Zodiac) were divided into 12 sections (called Signs) of about 30 days each. There follow on the next three pages brief characterizations of each of these signs. Your sign will be that one in which your birth date falls. However, your sign also is found on many other dates of the year (see pages 24 to 46). Accordingly we have listed these other days under each sign — and have noted also those which will conflict with your own planetary sign.

The birthstones given under each sign cover respectively, in the order given, the two monthly periods under each sign.

Many readers of this Almanac have asked for information as to which sign is best for the activities listed below. You will note that under each sign (pages 57-59) we have listed the letters pertaining to the activity best carried on under that sign. However, if an activity appears as best under Aries (Mar. 21-Apr. 19), any day(s) against which ARI appears in the next to the last column of pages 24-46 is also good for that activity. Same with Taurus, etc.

A Cutting grass or brush, weeding.
B Cutting and setting posts or timbers.
C Cutting hay, pruning.
D Planting above ground crops.
E Planting root crops, house painting.
F Harvesting crops or herbs.
G Breeding, setting hens, creating, baking.
H Weaning.
I Slaughtering.
J Operations, pulling teeth.
K Hairdos, sheep shearing, buying clothes.
L Business, gambling, taking risks.
M Fishing.
N Travel, marriage, romance.

ARIES

ABBR: "ARI" SIGN: LAMB
Controls the head and face
Belongs to those born Mar. 21-Apr. 19
Ruling Planet, Mars; Birthstone
Jasper, Bloodstone, (Aquamarine);
Colors, Red, Green.

Best for D, L, G, F, I.

Other ARIES days: Feb. 1; Apr. 23, 24; June 17, 18; July 14, 15; Sept. 7, 8; Nov. 27, 28, 29; Dec. 25, 26. You are under planetary influences of other planets on: Jan. 3, 4, 31 (Venus and Jupiter); Mar. 27, 28 (Mercury); May 20, 21, 22 (Mercury, Neptune, Jupiter).

TAURUS

ABBR: "TAU" SIGN: BULL
Controls the throat and neck
Belongs to those born Apr. 20-May 20
Ruling Planet, Venus; Birthstone,
Diamond, Sapphire; Color, Blue.

Best for E, K, B, I, F, G.

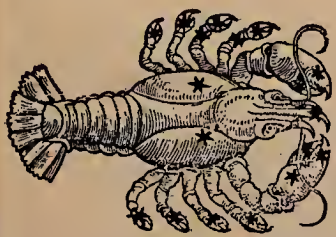
Other TAURUS days: July 16, 17; Dec. 27, 28. You are under planetary influences of other planets on: Jan. 5, 6 (Saturn); Feb. 2, 3 (Neptune, Jupiter); Mar. 1, 2, 29, 30 (Saturn); Apr. 25, 26 (Saturn); May 23, 24 (Jupiter, Neptune); June 19, 20 (Saturn); Aug. 13, 14 (Saturn); Sept. 9, 10 (Saturn); Oct. 7 (Uranus); Nov. 2, 3, 4, 30 (Saturn).

GEMINI

ABBR: "G'M" SIGN: TWINS
Controls shoulders, lungs, arms,
hands, and the nervous system.
Belongs to those born May 21-June 20
Ruling Planet, Mercury; Birthstone,
Emerald; Color, Green.

Best for J, G, L, A, I, F.

Other GEMINI days: Feb. 4, 5; Mar. 3, 4, 31; Apr. 27, 28; May 25; Aug. 15, 16; Sept. 11, 12. You are under planetary influences of other planets on: Jan. 7, 8 (Pluto); June 21, 22 (Mercury, Venus); July 18, 19 (Saturn); Oct. 8, 9 (Saturn, Mercury); Nov. 5, 6 (Venus, Neptune); Dec. 1-3, 29-31 (Saturn).



CANCER

ABBR: "CNC" SIGN: CRAB
Controls breast and stomach
Belongs to those born June 21-July 22
Ruling Planet, Moon; Birthstone,
Agate (Pearl, Alexandrite, Moonstone),
Color, Blends.

Best for D, M, K, G, I, A, C.

Other CANCER days: Jan. 9, 10, 12; Feb. 6, 7; May 26, 27; June 21-24; July 20-21; Aug. 17, 18; Sept. 13, 14; Oct. 10, 11; Dec. 4, 5. You will be under other planetary influences than your own on these days: Mar. 5, 6 (Mercury); Apr. 1-3, 29-30 (Uranus); Nov. 7, 8 (Mercury, Neptune).

LEO

ABBR: "LEO" SIGN: LION
Controls the heart
Belongs to those born July 23-Aug. 22
Ruling Planet, Sun; Birthstone,
Turquoise (Ruby); Color, Blue-Red.

Best for K, B, A, F, N.

Other LEO days: Jan. 13, 14; Feb. 8, 10; Mar. 7, 8, 9; Apr. 4, 5; May 1, 2, 28-30; June 23-26; Aug. 19, 20; Sept. 15, 16; Oct. 12-14; Nov. 9, 10; Dec. 6, 7. Those born in Leo will be ruled by the Sun all year.

VIRGO

ABBR: "VIR" SIGN: VIRGIN
Controls the lower intestines
Belongs to those born Aug. 23-Sept. 22
Ruling Planet, Mercury; Birthstone,
Carnelian (Peridot, Sardonyx);
Colors, Red-Brown, Green-Yellow.

Best for J, K, L, A, I, F.

Other VIRGO days: Jan. 15-17; Feb. 11, 12; Mar. 10, 12; Apr. 6-8; May 3-5, 31; June 1, 2, 25, 28, 29; July 25, 26; Aug. 21-23; Oct. 15, 16; Nov. 11-13. You will be under planetary influences of other planets on: Sept. 17, 18, 19 (Neptune and Jupiter), Dec. 8, 9, 10 (Jupiter).

LIBRA

ABBR: "LIB" SIGN: SCALES
Controls the loins
Belongs to those born Sept. 23-Oct. 22
Ruling Planet, Venus; Birthstone,
Chrysolite (Sapphire);
Colors, Green-Blue.

Best for D, N, K, G, I.

Other LIBRA days: Sept. 20, 21, 22; Oct. 17-19; Nov. 11-13. You will be under the planetary influences of other planets on these days: Jan. 18, 19 (Uranus); Feb. 13-15 (Uranus); Mar. 13-15 (Uranus); Apr. 9-11 (Uranus); May 6-8 (Uranus); June 3, 4, 30 (Uranus); July 1, 2, 27-29 (Uranus); Aug. 24, 25 (Uranus); Nov. 14, 15 (Venus, Jupiter); Dec. 8-10 (Jupiter).

SCORPIO

ABBR: "SCO" SIGN: SCORPION
Controls the generative organs
Belongs to those born Oct. 23-Nov. 21
Ruling Planet, Mars; Birthstone,
Beryl (Opal, Tourmaline);
Color, Blends.

Best for M, G, I, A.

Other SCORPIO days: Feb. 16, 17 (That's all). Days on which you are under planetary influences other than your own: Jan. 20-22 (Jupiter, Neptune, Venus); Mar. 16, 17 (Neptune); Apr. 12-14 (Neptune, Jupiter); May 9-11 (Neptune, Jupiter); June 7, 8 (Mercury); July 3, 4, 30, 31 (Jupiter, Neptune); Aug. 26-28 (Mercury, Jupiter); Sept. 23, 24 (Mercury) Oct. 2, 10, 21 (Venus); Nov. 16-18 (Venus, Mercury); Dec. 14, 15 (Neptune).

SAGITTARIUS

ABBR: "SGR" SIGN: ARCHER
Controls the thighs
Belongs to those born Nov. 22-Dec. 21
Ruling Planet, Jupiter; Birthstone, Topaz; Color, Gold.
Best for J, N, K, F, I, H.

Other SAGITTARIUS days: Jan. 23, 24; Mar. 18, 19; Apr. 15, 16; May 12, 13; June 9; July 5, 6; Dec. 16, 17. Days during which you will be subject to other planetary influences than Jupiter: Feb. 18, 19 (Neptune) Aug. 1, 2, 29, 30 (Neptune); Oct. 22-24 (Neptune); Nov. 19, 20 (Venus).

CAPRICORNUS

ABBR: "CAP" SIGN: GOAT
Controls the knees
Belongs to those born Dec. 22-Jan. 19
Ruling Planet, Saturn; Birthstone, Ruby (Turquoise, Zircon);
Colors, Red-Blue-Green.
Best for J, G, I, H.

Other CAPRICORNUS days: Mar. 20, 21; May 14, 15; July 7-9; Aug. 3, 4, 31; Sept. 1, 27, 28; Oct. 25, 26; Nov. 21, 22; Dec. 18. 19. Days in which you will be subject to planetary influences other than Saturn: Jan. 25 (Mercury); Feb. 20, 21 (Venus); Mar. 22-23 (Mars); Apr. 17, 18 (Mars); June 10, 11 (Venus).

AQUARIUS

ABBR: "AQR" SIGN: WATER BOY
Controls the legs
Belongs to those born Jan. 20-Feb. 18
Ruling Planet, Uranus; Birthstone, Garnet; Color, Dark Red.
Best for D, K, B, I, H, A.

Other AQUARIUS days: Feb. 23, 24; June 12-14; Nov. 23-24. Days in which you will be influenced by planets other than Uranus: Jan. 26, 27 (Mars, Neptune); Mar. 22, 23 (Mars); Apr. 19, 20 (Mercury); May 16, 17 (Mars, Saturn); July 10, 11 (Mars); Aug. 5-7 (Mars); Sept. 2, 3, 29, 30 (Mars); Oct. 28, 29 (Mars); Dec. 20-21 (Venus).

PISCES

ABBR: "PSC" SIGN: FISH
Controls the feet
Belongs to those born Feb. 19-Mar. 20
Ruling Planet, Neptune; Birthstone, Amethyst; Color, Purple.
Best for D, M, B, G, I, H, C.

Other PISCES days: Jan. 1, 2, 28, 29; Mar. 24-26; May 18, 19; June 15, 16; July 12, 13; Aug. 8, 9; Sept. 4-6; Oct. 1, 2, 29, 30. Days in which Neptune is not your ruling planet: Apr. 21, 22 (Venus); Nov. 25, 26 (Saturn, Mars); Dec. 22-24 (Mars).

OF WINE AND ROSE HIPS

by George F. Bush

A rose is a rose, is a rose, as the oft-repeated prose reminds us, but the fruit of a rose is a rose hip, or a rose hoepe, as the Anglo-Saxons first called it several centuries ago.

To say that these same Anglo-Saxons made wine of the rose hip is conjectural. If they did make it, you may be sure that their descendants would have been even more venturesome than the brave English colonizers and freebooters that they were, for the effects of the rose hip wine are incurably exhilarating. Admittedly, the wine is not an "elixir vitae", that imaginary drink supposed to sustain life indefinitely, but it certainly is the liquid equivalent of that imaginary elixir by which the ancient alchemists once hoped to convert the base metals, like lead, into the noble ones like gold.

From the wild rose hip, which is the seedy fruit of the rose, can also be made the most healthful, yet sumptuous, jam or jelly, the most unusual candy or cake, and of course the other liquid forms of cordial and tea. So delicious and stimulating is the wine, at least according to those who have been properly introduced, that often unusual and unexpected benefits derive from its regular use. Some of the users have even gone so far as to say flat out that the wild rose wine has apparently arrested, if not completely cured, their consistently grouchy stomachs—". . . much better than grandmother's sassafrass and camomile tea . . ." Other users, whose reports I do not altogether swallow, even say that common diseases like the shingles and dandruff, even heart trouble and arthritis, have been at least partially relieved. But as for Sue Poindexter's sworn assertion that it took only a few doses of wild rose wine to fix up her infertility, I relinquish all claims to any such nonsense.

When in pursuit of the wild rose hip, look first for the wild rose flower. Usually of five petals in a single layer, and either white or of various shades of red to lavender, it usually grows profusely on a bush anywhere from three to six feet in height in the temperate regions. The green leaves of these convenient bushes are usually sort of wrinkled in a regular pattern, not too unlike a herringbone, but these are not the wrinkles of a dying leaf. In fact, the leaf is generally green long after the last flower has fallen.

As the death of the flower approaches, the rose hip begins to form at the base of the petals and it grows into either a spherical or conical shape. Of the latter, some have said that, in the case of one species, it reminds them of a small, rusty onion; in the case of another species, of an orange-red tam-o-shanter cap. In all cases, the hip begins to mature as the flower begins to die, for the hip is the reproductive part of the rose.

Inside the pod, which is usually tomato-red in color, are the many reproductive seeds, all neatly packed in symmetrical rows about the center, much like the segments of an orange, so that, when the pod breaks open, the seeds will scatter radially from the plant in order to cover as much ground as possible. The better to assure survival. Nature not only uses this one of her oldest stratagems, namely supersaturation by numbers; she also uses a sowing mechanism whose efficiency resembles that of a mechanical planter.

Wild rose wine from your own rose hips is easy to make. To begin, always note that great care must be taken not to contaminate things anywhere during the process, whether it be the simple apparatus or the ingredients. The only ingredients are fruit, sugar, yeast, and good water. Never use artificial flavoring. No unusual or expensive paraphernalia are required; only that attention to detail which makes a better wine instead of an ordinary one. When all of the preliminaries have been completed, and the so-called Must is in the container, Nature will take over the fermentation factory and, in a few weeks, she will have used its chemical machinery in her characteristically efficient manner to produce a wine which will justify the expression "a nectar of the gods".

To make wild rose wine, and in fact any wine, make the following steps in the order given:

First, wash the fruit thoroughly with cold water. Remove the seeds and any bad portions. Crush the fruit manually, preferably wearing rubber gloves to avoid staining the hands by the acids which are mainly in the skin of the fruit. Do not remove the skins, since these impart the characteristic color, flavor, and medicinal properties, as we shall see later in detail.

Second, to obtain a 14% alcohol content, add enough sugar to make a 22% sugar solution with the fruit and water. This can be determined with an hydrometer, an instrument for measuring the specific gravity of solutions (e.g. the solutions in your car's battery or radiator). If an hydrometer is not available, use a piece of solid nylon about the size of a quarter, since its specific gravity is the correct value of 10/9 approximately; try your local hardware store. Add just enough sugar to suspend this "float" in the solution.

Third, load the solution into a thoroughly cleaned container leaving about ½ to 1 inch of space at the top to allow room for foaming and gas formation during fermentation. Add a thin yeast mixture made by adding

Continued on page 62

warm water to either half of a regular one-inch square, cake of yeast or to half a packet of dry yeast for the first gallon of solution. One full cake or packet is enough for any greater quantity up to 5 gallons.

To let the fermentation gas escape and to prevent the outside air from entering the container and oxidizing its contents, the following water seal may be easily improvised. Run a tight-fitting tube through the solution-container's airtight stopper and into water in another smaller nearby container whose water level is lower. The gas entering the tube, which should be well above the solution level, will then bubble through the water to atmosphere. This system must be airtight.

Fourth, during fermentation, which should begin in a day or so, be sure that the gas bubbles can be seen. If not seen, you have a leak probably at the water-seal device as above indicated. Also be sure, especially during the first few days, that the generated foam is not blocking the water seal. In about a week the maximum fermentation rate of about one bubble per second occurs; in three to six weeks, the bubbles will stop and clarification can begin.

Fifth, clarification, or so-called racking, is the removal of the large sedimentation particles (spent fruit skins, pulp, etc.) by pouring the contents through a strainer with 1/16 inch holes. After removing this sediment from the container, pour back the strained solution and let the fine particles of spent yeast, etc. settle for about a week. By careful siphoning, one or more times, the now-clear wine can be transferred to your clean wine bottles, fancied up, if you like, with your own hand-made labels. If the sediment settles very slowly, add a small pinch of flavorless gelatin to the wine.

Sixth, for at least six months the wine should be aged in the absence of air, say by filling the bottles and closing the top; otherwise the mold which may form on the top will spoil the flavor. Polyethylene or wooden containers may be used; glass may shatter if fermentation is incomplete.

In addition to such possible explosions, avoid possible poisoning by discarding immediately any wine which has an unpleasant, sour taste. Less hazardous, but much to the point, is the advisability of keeping a record of every different kind of wine made so that any masterpieces may be easily duplicated.

Unlike the above-indicated record, one of your entire production is required by Federal law. While this may seem extreme, the U. S. Government is actually lenient to winemakers. It allows 200 gallons per year to be made by the "head of the household", but this head must serve the wine only to his immediate family; none may be served to friends or offered for sale. Winemakers must register on Federal Form #1541 which, when completed, is sent to the Alcohol Tax Unit of the local Bureau of Internal Revenue. Complete information may be found in Wine Regulations obtainable from the Superintendent of Documents, Washington, D.C. 20025.

BEST FISHING DAYS 1971

There are probably more "fishing calendars" sold each year than all the almanacs put together. It is likely that the more mystifying the ingredients of these calendars are, the more popular they become. Almost all agree, however, that fishing is better when 1) the barometer is rising or high; 2) when the moon is between the new and the full; and 3) when the moon is in the astrological sign of Cancer, Pisces or Scorpio. The days listed below in **bold face** are days during which all three of the above conditions will exist — the others listed are those during which 2 out of 3 occur.

Jan. **9-11**, 28-30. Feb. **6-7**, 25-26. Mar. **5-6**, 26. Apr. **1-2**, 29-30. May **9-10**, 26-27. June **5-6**, 23-24. July 3-4, 30-31. Aug. **26-28**. Sept. 4, 23-24. Oct. **1-2**, 20-21, **29-30**. Nov. 17, **25-26**. Dec. 21-23.

Here are a few observations, taken from a room full of fishing books and clippings, which may or may not prove helpful:

Water temperatures between 55°F and 74°F are best; the clearer the water, the better, preferably with a slight ripple; south and west winds are the best, or any off-shore breeze.

The best times for fishing (or hunting) are one hour before and after high tide, and one hour before and after low tide. The times of high and low tides are given on pages 24-46 and corrected for your locality on page 84. Low tides are halfway between high tides.

KILLING FROSTS and GROWING SEASONS

Courtesy of U. S. Weather Bureau

City	G.S. (Days)	Last Frost Spring	First Frost Fall
Lander, Wyo.....	123	May 18	Sept. 18
Bismarck, N.D....	133	May 11	Sept. 21
Alpena, Mich.....	141	May 13	Oct. 1
Helena, Mont.....	145	May 7	Sept. 29
Reno, Nev.....	145	May 14	Oct. 6
Marquette, Mich..	149	May 13	Oct. 9
Concord, N.H.....	149	May 7	Oct. 3
Duluth, Minn.....	152	May 6	Oct. 5
Green Bay, Wisc..	157	May 5	Oct. 9
Pocatello, Ida.....	160	Apr. 29	Oct. 6
Denver, Colo.....	160	May 3	Oct. 10
Pierre, S. Dak.....	160	Apr. 30	Oct. 7
Minneapolis.....	166	Apr. 27	Oct. 10
Detroit, Mich.....	170	Apr. 28	Oct. 15
Des Moines, Ia....	171	Apr. 21	Oct. 9
Fort Wayne, Ind..	171	Apr. 25	Oct. 13
Ludington, Mich..	172	May 2	Oct. 21
Albany, N.Y.....	174	Apr. 24	Oct. 15
Madison, Wisc....	174	Apr. 26	Oct. 17
Santa Fe, N.M....	177	Apr. 25	Oct. 19
Hartford, Conn....	177	Apr. 20	Oct. 13
Toledo, Ohio.	179	Apr. 22	Oct. 18
Portland, Maine	181	Apr. 19	Oct. 17
Spokane, Wash	182	Apr. 14	Oct. 13
Parkersburg.....	184	Apr. 17	Oct. 18
Omaha, Nebr.....	184	Apr. 14	Oct. 15
Salt Lake City....	185	Apr. 18	Oct. 20
Chicago, Ill.....	186	Apr. 16	Oct. 19
St. Joseph, Mo....	191	Apr. 9	Oct. 17
Trenton, N.J.....	191	Apr. 16	Oct. 24
Springfield, Mo....	193	Apr. 12	Oct. 22
Boston, Mass.....	195	Apr. 14	Oct. 26
Wichita, Kans.....	197	Apr. 9	Oct. 23
Cincinnati, Ohio ..	198	Apr. 8	Oct. 23
Lewiston, Ida.....	201	Apr. 6	Oct. 24
Harrisburg, Pa....	202	Apr. 9	Oct. 28
Evansville, Ind....	207	Apr. 5	Oct. 29
Cairo, Ill.....	212	Mar. 31	Oct. 29
Richmond, Va.....	216	Mar. 31	Nov. 2
Roseburg, Ore.....	217	Apr. 8	Nov. 11
Oklahoma City....	218	Mar. 30	Nov. 3
Chattanooga.....	220	Mar. 29	Nov. 4
Raleigh, N.C.....	223	Mar. 27	Nov. 5
Little Rock, Ark...	241	Mar. 18	Nov. 14
El Paso, Tex.....	242	Mar. 19	Nov. 16
Tucson, Ariz.....	243	Mar. 11	Nov. 9
Macon, Ga.....	245	Mar. 14	Nov. 14
Columbia, S.C.....	246	Mar. 17	Nov 18
Montgomery, Ala..	250	Mar. 8	Nov. 13
Shreveport, La....	251	Mar. 6	Nov. 12
Portland, Ore.....	251	Mar. 15	Nov. 21
San Bernardino...	259	Mar. 8	Nov. 22
Eureka, Calif.....	277	Mar. 16	Dec. 18
Del Rio, Tex.....	277	Feb. 23	Nov. 27
Sacramento.....	283	Feb. 19	Nov. 29
Phoenix, Ariz.....	296	Feb. 10	Dec. 3
Yuma, Ariz.....	334	Jan. 20	Dec. 20
San Francisco.....	350	Jan. 13	Dec. 29
Los Angeles.....	*	*	*
Miami, Fla.....	*	*	*
San Diego.....	*	*	*

*Frosts do not occur every year.

FISH AND GAME SUMMARY

(Format copyrighted — must not be copied.)

Based on latest (mostly 1969–70) available laws courtesy of State Fish & Game Commissioners. For the most part 1971 laws not released until after press date (June, 1970) and so no attempt is made here at accuracy; in fact, only approximations of the months which may include seasons are given. This table useful only for vacation planning considerations and to satisfy curiosity as to what the various states offer in the way of hunting and fishing. Migratory Bird Regulations are available at any post office.

EXACT DATES, LIMITS, ETC. MUST BE VERIFIED LOCALLY.

STATE / SPECIES	ANTELOPE	BEAR	DEER	MT. GOAT SHEEP	ELK	MINK	MUSKRAT	OPOSSUM	RABBIT	RACCOON	SQUIRREL
Alabama....		C	11-1			11-2	11-2	10-2	10-2	10-2	10-1
Alaska.....		9-6	8-12	8-1	8-12	X	X		O	X	X
Arizona.....	P-9	4-5,9-1	10-11	P-12	P9-11	O	O	O	O	O	9-11
Arkansas....		C	10-12			11-2	11-2	11-2	10-2	11-2	10-12
California...	C	9-1	8-1	X	X	11-2	11-3	X	7-1	O	8-1
Colorado....	P-9	4-10	8,10,11	P-8	10-11	O	O	O	10-2	O	10-12
Connecticut.			11-12			C	C		10-1	9-1	10-1
Delaware ...			11			12-1	12-1	O	11-1	9-1	9-10
Florida.....		11-1	11-1					O	O	O	11-2
Georgia.....		11-7	10-1			11-2	11-2	10-11	11-2	10-2	10-2
Hawaii	S	X	S	O	X	X	X	X	X	X	X
Idaho	S	O	9-12	9	9-12	11-12	11-12		9-2	O	C
Illinois			11-12P			11-1	11-1	11-1	11-1	11-1	8-10
Indiana.....			10-12			11-1	11-1	11-1	11-1	11-1	8-10
Iowa			S			11	11-1	11-2	9-2	10-2	9-12
Kansas.....	C		P-12			12-1	12-1	12-1	12-10	O	8-12
Kentucky...	X	C	10-12	X	X	11,12,1	11,12,1	11,12,1	11,12,1	11,12,1	8-12
Louisiana..		C	11-1			12-2	12-2	12-2	10-2	12-2	10-1
Maine.....		6-12	10-11			11	11,4		10-3	9-12	10-11
Maryland...		C	9-12			1-3	1-3	9-3	11-1	9-3	10-11
Mass.		10-12	11,12	X	X	11-2	11-2	9-12	10-2	9-12	10-11
Michigan ...		9-11	10-12		X	10-1	10-1	O	10-2	10-12	9-11
Minnesota ..		O,S	11			11-12	11-12		10-2	O	10-12
Mississippi..	X	C	11-1	X	X	12-2	12-2	11-2	10-2	11-2	10-1
Missouri....			11			C	C	11-1	5-2	11-1	5-12
Montana....	10-11	3-11	10-11	9-11	10-11	S	S	O	O	O	O
Nebraska...	9	X	11	X	X	11-1	11-2	O	O	O	9-1
Nevada.....	8-9		10-11	11-1	11-12	11-3	11-3		10		
New Hamp..		9-12	11-12			10-2	10-2		10-3	8-12	10
New Jersey		12	12			11-3	11-3		11-2	11-3	11-2
New Mexico	9-10	8-12	10-12	S	10-1	12	11-4	O	O	O	O
New York...		10-12	10-12			10-3	10-4	O	10-2	10-3	10-1
Long Is. ..		X	S			12-3	12-3	O	11-1	11-2	11-1
No. Carolina		10-1	10-1			11-2	11-2	10-2	11-2	10-2	10-1
No. Dakota.	8-12		8-12	C	C	11-12	11-12	X	O	O	9-12
Ohio		C	12S			11-1	11-1	11-1	11-1	11-1	9-11
Oklahoma...	C	C	11	C	11	12-1	12-1	12-1	10-2	12-1	5-12
Oregon	P-8	8-12	10	P	10-11	11-1	11-2	O	O	O	9-10
Penn.....		11	10-1		C	11-1	11-3	O	10-1	O	10-1
Rhode Island			12						11-1	10-1	11-12
So. Carolina.		C	8-12			S	S	S	S	S	S
So. Dakota..	9	X	11	C	S	11-12	11-12	11-4	S	O	O
Tennessee...	X	10,12	11-12	X	X	11-2	11-2	11-2	11-2	10-2	8-11
Texas	9-10	11-12	11-12	C	O	11-1	11-3	O	O	O	S
Utah.....	P	11-5	10-11	P	P	10-5	O	X	10-3	X	O
Vermont....	X	9-11	10,11	X	C	10-2	10-4	O	9-2	8-12	9-11
Virginia.....		11-12	11S		C	C	C	10-1	11-1	10-3	9-10
Washington.	C	O	10-11	9-10P	11	11-1	11-3	O	10-2	O	C
W. Virginia.		11,12	11-12			11-2	11-2	O	11-2	10-1	9-1
Wisconsin...		9-11	9-12			10-1	10-12	O	10-1	S	10-1
Wyoming...	10-12	4-6,9-11	9-12	9-12	9-12	X	O	O	9-4	O	O

SPECIALS IN CERTAIN STATES:

ALLIGATOR: Ala. (C), Fla. (C), Ga. (C), Miss. (C), Tex. (C) — BUFFALO: Alas (S), Ariz. (P-10), Minn. (O), S.D. (O), Utah (P), Tex. (C) — CARIBOU: Alas (8-3) — COUGAR: Ariz. (O), Nev. (O) — IBEX, KUDU, GEMSBOCK: N. Mex. (C) — CHACHALACA: Tex. (12-1) — JAVELINA: Ariz. (2-3), N. Mex. (X), Tex. (11-12) — MOOSE: Alas (8-11), Ida. (P), Mont. (9-11), Utah (P), Wyo. (9-10) — WILD BOAR: Cal. (X), Fla. (S), Haw. (O), N.C. (10-12),

SYMBOLS USED PAGES 64 AND 65

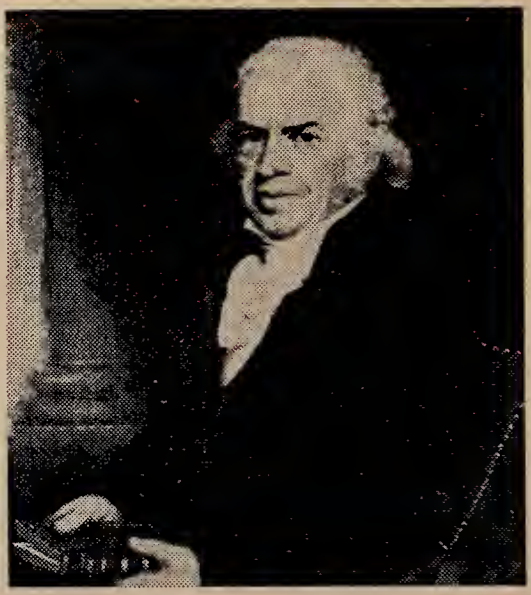
Months: January is represented by the numeral "1" — February by the numeral "2", etc. Seasons: In the columns under the various animals, birds, and fishes you will note numerals. Thus "12-3" means the season opens in December and closes in March. A number alone means the season opens and closes within that month. Thus "12" alone means the season is December. A number followed by a comma denotes two seasons: thus "9, 12" would mean one September and another in December. "O" means no closed season; "X" not available; "S" special seasons; "C" closed; "P" permit only.

VERIFY EXACT OPENING & CLOSING DATES IN EVERY CASE.

PARTRIDGE GROUSE	PHEASANT	QUAIL	TURKEY	STATE SPECIES	BASS	CATFISH PERCH SUNFISH CRAPPIE	PIKE PICKEREL	SALMON	BROOK TROUT	LAKE TROUT	WHITEFISH
		11-2	3-4, 11-1	Alabama	O	O	O	O	O	O	O
8-5				Alaska	O	O	O	O	O	O	O
9-1	P-11	10-1	5, 10-11	Arizona	O	O	O-X	O	O	X	X
C	C	12-2	4	Arkansas	O	O	O				
9	11-1	10-1	11S	California	O	O	O	5-11	5-11	5-11	5-11
9	11-12	11-12	10	Colorado	O	O	O	O	O	O	O
10-12	10-12	10-11	C	Connecticut	4-2	O	4-2	4-2	4-10	4-10	
10-12	11-1	11-2	X	Delaware	O	O	O	O	4-11	O	O
		11-2	11-1	Florida	O	O	O	O	O	O	
1-2		11-2	11-2	Georgia	O	O	O	X	4-10		
11-1	11-1	11-1	11-4	Hawaii	O	OX-OX	X	X	X	X	X
9-12	10-12	9-12	9	Idaho	O	O	X	6-7	6-11	4-11	O
11-12C	11-12	11-12	4S	Illinois	O	O	O	O	O	O	O
10-11	11-12	11-12	5	Indiana	O	O	O	O	5-10	O	O
11-1	11-12	10-12	10-12	Iowa	O	O	5-2		O		
11	11-12	11-12	C	Kansas	O	O	O				
	C	11-1	S	Kentucky	O	O	4-1	O	O	O	O
		11-2	3-4	Louisiana	O	O	O				
10-11	10-11		C	Maine	6-9	4-9	4-9	4-9	4-9	4-9	4-9
10-12	11-1	11-1	10S	Maryland	O	O	O	O	O	O	O
10-1	10-11	10-11	C	Massachusetts	4-2	4-2	4-2	4-10	4-10	4-10	X
10-12	10-11	11	S	Michigan	5-9	4-9	5-9	4-9S	4-9S	4-9S	4-9
10-11	10-11	C	C	Minnesota	5-2	O	5-2	O	5-9	1-9	O
X	X	12-2	4	Mississippi	O	O	O	X	X	X	X
	11-12	11-1	4	Missouri	O	O	O				
9-11	10-11	X	5-9	Montana	5-11	O	O	5-11S	5-11	5-11	5-11S
10	11-1	11-1	4, 11	Nebraska	O	O	O	O	O	X	X
10	11	11	10-11	Nevada	O	O		S	O	O	O
10, 12	10, 11	10, 12	X	New Hampshire	O	O	O	4-9	5-9	1-9	1-9
11-2	11-12	11-2	C	New Jersey	O	O	O	1-3	1-3	1-3	O
9	11-12	11-1	10-11, 4	New Mexico	O	O	O-X	9-12S	0,5-11	0,5-11	X
10-1	10-11	10-11	5, 10-11	New York	6-11	O	5-2	4-9	4-9	4-9	4-9
11-12	11-12	11-12	C	Long Island	6-11	O	5-2	4-9	4-9	4-9	4-9
10-2	11-2	11-2	12-2, 4-5	North Carolina	O	O	O		4-9		
9-12	10	11P	11P	North Dakota	5-12	O	5-12	X	5-12		X
10-2	11-1	11-1	4-5, 5	Ohio	O	O	O	O	O	O	O
O	11	11-1	11, 4	Oklahoma	O	O	O	X	O	X	X
10-11	10-11	10-11	11P	Oregon	O	O	X	O	4-10	4-10	O
10-1	11	11	5-11	Pennsylvania	1-3, 6-3	O	1-3, 5-3	4-9	4-9	4-9	O
10-1	10-12	11-12		Rhode Island	4-2	O	4-2		4-2		
S	S	11-2	S	South Carolina	O	O	O	X	O	X	X
9-10	10, 11	11	4, 5, 10, 11	South Dakota	O-S	O-S	O-S	X	O	X	X
11-2	C	11-2	3-5	Tennessee	O	O	O	X	O	X	
C	S	11-1	11-12	Texas	O	O	O	X	X	X	X
9-12	11	11	P	Utah	O	O	O	6-11	6-11	6-11	6-2
10-11	10	10	10	Vermont	6-11	O	4, 3	4-9	4-9	4-9	O
11-2	S	11-1	11-12	Virginia	O	O	O	O	4-12	O	O
9-1	10-12	10-1	10	Washington	O	O		O	4-10	4-10	S
10-2	11-1	11-2	10-11, 4-5	West Virginia	O	O	O	O	O	X	X
10-11	10-11	S	C	Wisconsin	5-2	O	5-2	O	5-9	1-9	O
9-1	11-1	11-1	4, 11	Wyoming	O	O	O	O	O	O	O

Tenn. (10), Tex. (10), BLUEGILL: Ariz. (O), Ga. (O), Ind. (O), Ia. (O), Mich. (O), N. M. (O), S. D. (O), Tenn. (O) — BULLFROGS: Ariz. (6-11), Ark. (4-12), Del. (5-12), Haw. (O), Idaho (6-10), Ill. (6-8), Iowa (O), Ind. (4, 6-10), Kans. (7-9), La. (6-3), Md. (O), Mo. (7-11), Neb. (7-10), Nev. (O), N. Mex. (8), Ohio (6-4), Ore. (O), Pa. (7-10), Tenn. (O), W. Va. (6-7), Wisc. (5-12) — SHAD: Calif. (O), Conn. (4-X), Del. (3-6), Fla. (1-4), Ga. (1-4), Ia. (O), Md. (3-9), N. H. (1-8), Ore. (O) — STURGEON: Ariz. (C), Ida. (O), Iowa (C), Mich. (O), Ore. (O), S. Dak. (O), Wis. (S) — TERRAPIN: Fla. (X), Pa. (10), Tenn. (O).

Isaiah Thomas and The Lord's Letter



Isaiah Thomas (1749–1831) primarily of Worcester, Mass. was one of America's most prominent printers. Apprenticed to the printing trade at the unbelievably early age of 6, he had become the partner of his master, Zechariah Fowle, by the age of 21. He produced the *Massachusetts Calendar*, an early almanac, and also printed the rebellious newspaper *The Massachusetts Spy* in the early days of the American Revolution. After the Revolution, Thomas became America's leading printer of books, newspapers and almanacs, so much so that by 1802 when he could retire, he devoted himself to writing *The History of Printing in America*. He also founded the American Antiquarian Society.

One of the earlier publications which Isaiah Thomas reprinted from a London version is so unique that it bears reprinting at this time. *A Copy of a Letter Written by Our Blessed Lord and Saviour, Jesus Christ*, printed by I. Thomas in 1773 is reproduced here for the benefit of the reader without attempting to justify the authenticity of the story or the source from which it came. The reader should be warned that the type style includes the long s (ſ) which looks much like "f" and can be confusing. The original copy has been reproduced in the same size as it appears in real life and it is no mere coincidence that the page size just fits our Almanac page. For, as the reader may have guessed, Robert B. Thomas, (no known relation to Isaiah Thomas but a contemporary of his,) founded the Old Farmer's Almanac near Worcester, Mass. in 1792 and the presses available to him to produce his first Farmers' Almanac were undoubtedly the same or similar in size to the presses operated by I. Thomas. Hence, the similar page size would have been adopted and that size has been preserved in the printing of this Almanac ever since.

A

COPY of a LETTER

WRITTEN

By Our Bleſſed LORD and SAVIOUR

JESUS CHRIST.

AND

Found under a great Stone Sixty-five Years after his Crucifiction.

LONDON, Printed:
BOSTON, Reprinted and ſold by I. THOMAS, near the MARKET, DOCK-SQUARE. 1773.

[2]

A Copy of a Letter, &c.

AND found eighteen Miles from *Iconium*, fixty-five Years after our bleſſed Saviour's Crucifiction, tranſmitted from the holy City by a converted Jew; faithfully tranſlated from the Original Hebrew Copy now in poſſeſſion of the Lady *Cuba's* family at *Meſopotamia*: This Letter was written by JESUS CHRIST, and found under a great ſtone both round and large, at the Foot of the Croſs, eighteen miles from *Iconium*, near a Village called *Meſopotamia*; upon that Stone was written and engraven, *Bleſſed is he that ſhall turn me over.* All People that ſaw it, prayed to God earneſtly, and deſired he would make known to them the meaning of this writing, that they might not attempt in vain to turn it over; in the mean Time there came a little Child about ſix or ſeven Years old, and turned it over without Help, to the Admiration of all the People that ſtood by, and under this ſtone was found a Letter written by JESUS

CHRIST

[3]

CHRIST, which was carried to the City of *Iconium*, and there publiſhed by a Perſon belonging to the Lady *Cuba*, and on the Letter was written, the Commandment of JESUS CHRIST, ſigned by the Angel *Gabriel*, ninety-eight Years after our Saviour's Birth. To which is added, King *Agbarus's* Letter to our Saviour, and our Saviour's anſwer. Alſo his Miracles.

A Letter of JESUS CHRIST.

WHoſoever worketh on the Sabbath Day, ſhall be curſed; I command you to go to Church, and keep the Lord's Day holy, without doing any Manner of Work. You ſhall not idly miſpend your Time in bedecking yourſelves with ſuperfluities of coſtly Apparel, and vain Dreſſes, for I have ordained it a Day of Reſt, I will have that Day kept holy, that your Sins may be forgiven you; you ſhall not break my Commandments, but obſerve and keep them, written with my own Hand, write them in your Hearts, and ſtead-faſtly

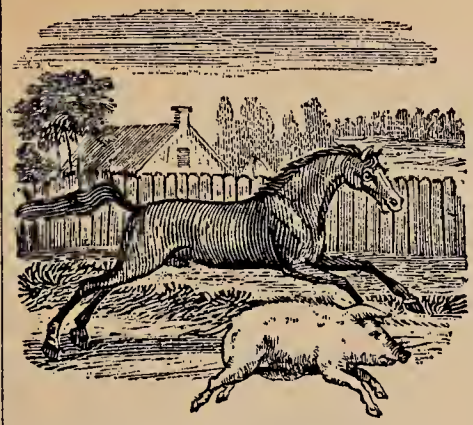
Continued on page 70

Continued from preceding page

A Letter of JESUS CHRIST.

steadfastly observe, this was written with my own Hand, spoken by my own Mouth. You shall not only go to Church yourselves, but also your Man-Servants, and your Maid-Servants, and observe my Words, and learn my Commandments; you shall finish your Labour every Saturday in the Afternoon by six of the Clock, at which Hour the Preparation for the Sabbath begins. I advise you to Fast five Fridays in every Year, beginning with Good-Friday, and to continue the four Fridays immediately following, in Remembrance of the five bloody Wounds I received for all Mankind; you shall diligently and peaceably labour in your respective Vocations wherein it hath pleased God to call you. You shall love one another with brotherly Love, and cause them that are not baptized to come to Church and hear the Holy Sacrament, viz. Baptism and the Lord's Supper and be made Members thereof; in so doing I will give you long life and many Blessings, and your Land shall replenish and bring forth Abundance; I will give you many Blessings, and comfort you in the greatest Temptations, and surely he that doth to the contrary, shall be cursed and unprofitable. I will also send Hardness of Heart upon them, till I have destroyed them, but especially upon hardened and impenitent Unbelievers; he that hath given to the Poor, he shall not be unprofitable. Remember to keep holy the Sabbath-Day, for the seventh Day I have taken to rest myself; and he that hath a Copy of this Letter written with my own Hand and spoken with my own Mouth, and keeps it, without publishing it to others shall not prosper, but he that publisheth it to others, shall be blessed of me, and though his Sins be in Number as the Stars in the Sky, and he believe in this he shall be pardoned, and if he believe not this Writing and my Commandments, I will send my Plagues upon him, and consume both him and his Children and his Cattle; and whosoever shall have a Copy of this Letter written with my own Hand, and keep it in their Houses, nothing shall hurt them, neither Pestilence, Lightning nor Thunder shall do them any Hurt; and if a Woman be with Child and in Labour, and a Copy of this Letter be about her, and she firmly put her Trust in me, she shall safely be delivered of her Birth. You shall have no News of me, but by the Holy Spirit, till the Day of Judgment.

All Goodness and Prosperity shall be in the House where a Copy of this Letter shall be found.



by William H. Sanders

The Extraordinary Race Between THE HORSE AND THE PIG

Everyone knows about the race of the Hare and Tortoise. Another strange race was a horse and a pig. This was not a fable, however. It happened in New Hampshire many years ago at the time horses and wagons were the only way to get about the countryside. Naturally much attention was given to the horses that could do this in "quick time". Nearly every farmer was raising colts and any likely colt "broken" to harness and wagon would bring a $100. in the brisk horse market. A "fast one" would bring real money, sometimes even three or even five hundred dollars. Some of the farmers did little else but talk buy and sell horses. Two-wheeled carts came into use because they were good for breaking the colts, should they shy to the side or suddenly decide to go in reverse.

Sam Dana seemed to do little else but break colts, and talk trotting horses. He was really successful with the colts. He would take a two-year old that was "halter handy" and in two weeks he was driving it around like a well-trained horse. Sam just had a way with horses. He picked up considerable cash money this way. With him it was horses, horses all the time. Seemed to be his only business. He had it all figured out how many feet a trotter would advance per second at given speeds. Farmer Colby got fed up with all this talk and said, "Look here, Sam, I have a Yorkshire pig at my place that can beat any trotter you have on a half-mile stretch. Here is a ten dollar bill to back it up." The stipulations were the horse must maintain a trot, and the place was to be measured half a mile out from Colby's farm, with the finish line at the farm. Colby was to have two weeks to train his pig. The race was set for 10:00 o'clock in the morning. There was laughter and joking around the cracker barrel, but Colby had no trouble in taking on a few side bets at high odds. Few people seemed to know the speed a half-grown pig could get up.

To train the pig, Colby put it in a crate on a "stone-boat", a low wooden sled used to pull large stones. Colby's son, with a horse, pulled the pig up to the starting place each day. It was 10:00 o'clock in the morning and the pig

Continued on page 139

Anecdotes and Pleasantries

SPEED THAT KILLS

Englishman George Stephenson's prize locomotive "Rocket" hauled a 14 ton load in 1829 at 29½ miles per hour. The news astonished the Yankees. Senator Silver H. Smith of Indiana proclaimed: "I tell you that in England they already have run fully loaded trains at 30 miles per hour."

This brought about the following response from a fellow Senator:

"Either you are crazy or you think we are fools, for a man could not live at that speed."

The "Rocket"

FORGOTTEN WORDS

BROWSE — twigs of trees or bushes.

DIBBLE — tool, sharp at one end, used for transplanting.

FOGAGE — uncut hay left to fertilize especially hard clay soil.

FOLDING — the practise of quartering livestock in different sections of a field rather than trying to spread manure over a whole field from the barn.

HATCHEL — a comb with steel teeth for flax or hays.

MARLE — a manure found in soil beds part sand, part limestone, part clay.

PALE — a pointed stake used for making enclosures.

SPRINGE — a device made of twisted wire to catch birds.

THILL HORSE — hindmost horse in a team which goes between the thills or shafts.

Deane's Dictionary 1822

JEFFERSON'S TEN RULES

1. Never put off till to-morrow what you can do to-day.
2. Never trouble another for what you can do yourself.
3. Never spend your money before you have it.
4. Never buy what you do not want because it is cheap; it will be dear to you.
5. Pride costs us more than hunger, thirst, and cold.
6. We never repent of having eaten too little.
7. Nothing is troublesome that we do willingly.
8. How much pain have cost us the evils which have never happened.
9. Take things always by the smooth handle.
10. When angry, count ten before you speak; if very angry, a hundred.

AMUSING

MR. THOMAS.

We have frequently heard of the wonderful feats and extraordinary stories of *Simonds, old Kidder, and Sam Hyde;* but I believe neither of them have exceeded the following, related by G. H—ll, a mighty hunter, and known in that part of the country where he lived by the name of the **Vermont Nimrod.** —It may serve to divert some of your evening readers. A. Z.

"I WAS once," said he, "passing down the banks of the Hudson in search of game, and suddenly heard a crackling on the opposite bank. Looking across the river, I saw a stately buck, and instantly drew up and let fly at him. That very moment a huge sturgeon leaped from the river in the direction of my piece. —The ball went through him, and passed on. I flung down my gun —threw off my coat and hat, and swam for the floating fish, which, mounting, I towed to the bank and went to see what more my shot had done for me. I found the ball had passed through the heart of the deer, and struck into a hollow tree beyond; where the honey was running out like a river! I sprung round to find something to stop the hole with, and caught hold of a white rabbit.—It squeaked just like a stuck pig; so I thrash'd it away from me in a passion at the disappointment, and it went with such force that it killed three cock partridges and a wood cock." ! ! !

Farmers Almanac 1809

HEALTH RESTORER

Life Insurance is a great thing. I would not be without it. My health is greatly improved since I got my new policy. Formerly I used to have a seal-brown taste in my mouth when I arose in the morning, but that has entirely disappeared. I am more hopeful and happy, and my hair is getting thicker on top. I would not try to keep house without life insurance. Last September I was caught in one of the most destructive cyclones that ever visited a republican form of government. A great deal of property was destroyed and many lives were lost, but I was spared. People who had no insurance were mowed down on every hand, but aside from a broken leg I was entirely unharmed.

My wife at first objected seriously to an insurance on my life, and said she would never, never touch a dollar of the money if I were to die, but after I had been sick nearly two years, and my disposition had suffered a good deal, she said that I need not delay the obsequies on that account. But the life insurance slipped through my fingers somehow, and I recovered.

In these days of dynamite and roller rinks, and the gory meat-ax of a new administration, we ought to make some provision for the future.

Remarks by Bill Nye, 1891

PRAISE BE

Adlai Stevenson is reported to have given this advice to a man who was about to receive an honorary degree, the citation for which would be replete with exaggerated praise of his accomplishments. Said Stevenson, "Such exaggerated flattery should do you no harm, and perhaps will be of some benefit to you, provided you do not inhale."

SENSE OF TASTE IN INSECTS

The faculty of taste seems to be possessed by insects in high perfection. The caterpillar of the antler-moth, though it feeds on a variety of grasses, and often ravages whole fields, always avoids the fox-tail grass. Some caterpillars will only eat the leaves of the kind of tree on which they were hatched. In Scotland, a small kind of gnat, on a certain occasion, attacked a party of haymakers, and gave them great annoyance. One among the men, however, escaped. This fellow the insects evidently did not like the taste of, for they did not inflict upon him a single bite.

IF YOU WANT A KISS—WHY, TAKE IT.

There's a jolly Saxon proverb
That is pretty much like this,
That a man is half in heaven
When he has a girl to kiss;
But there's danger in delaying—
And the sweetness may
foresake it;
So I tell you, bashful lover.
If you want a kiss, why,
take it.

Any fool may face a cannon:
Anybody wear a crown;
But a man must win a woman
If he'd have her for his own,
Would you have the golden
apple,
You must find the tree and
shake it,
If the thing is worth the having,
And you want a kiss, why,
take it.

Who would burn upon
the desert
With a forest smiling by?
Who would give his sunny
summer
For a bleak and wintry sky?
Oh! I tell you there is magic,
And you cannot, cannot
break it,
For the sweetest part of loving
Is to want a kiss, and take it.

THE MAN AND THE GOOSE

By Bierce

A man was plucking a living goose, when his victim addressed him thus:

"Suppose **you** were a goose; do you think you would relish this sort of thing?"

Just the way he felt.

"Well, suppose I were," answered the man; do you think **you** would like to pluck me?"

"Indeed I would!" was the emphatic, natural, but injudicious reply.

"Just so," concluded her tormentor; "that's the way I feel about the matter."

FAVORITE FAMILY RECIPES

Where in the world will one find finer recipes than in the many cooperative publications compiled by women's church and public service auxiliary groups of their family's favorite foods? From eight such cookbooks we've rounded out the three daily meals most people are addicted to, and with the consent of the groups involved we give them to you.

Most of these cookbooks are available still, direct from the addresses given at the end of these recipe pages.

BREAKFAST

BAKED OMELET

4 eggs
1 tsp. salt
1 tbsp. flour
1 pint milk

Beat whites of eggs stiff. Heat milk. Beat yolks of eggs until frothy. Add salt and flour and mix well. Add warm milk and mix with beaten egg whites. Pour into greased dish and bake 25 minutes at 400°.

The House Proud Cook Book

GINGERBREAD GEMS

½ cup molasses
¼ cup sugar
2 tbsp. melted butter
1 egg
¼ tsp. salt
1 tsp. ginger
½ cup sour milk or buttermilk
1 cup flour
½ tsp. soda

In mixing bowl blend molasses and sugar. Add melted butter and mix well. Add egg and beat. Stir in the sour milk with the soda dissolved in it. Sift the other dry ingredients together and add. Stir until all flour has disappeared. Spoon into 12 gem or muffin pans. Bake at 375°F. for 15-20 minutes. Serve hot.

The Malone Cook Book

APRICOT MARMALADE

1 lb. dried apricots
1½ cups sugar
1 tbsp. grated lemon rind
1 tbsp. grated orange rind
6 tbsp. lemon juice

Soak apricots overnight in cold water barely to cover. Next day, cover and cook until puffy and tender. Press through sieve, liquid and all. To 2 cups pulp add sugar, lemon juice and rinds. Cook over medium high heat, stirring constantly, until thick and waxy, about 15 minutes. Pour into 3-4 hot sterilized glasses and seal with hot paraffin.

The Copper Kitchen

LUNCH

SHRIMP AND KING CRAB CASSEROLE

40 Ritz crackers rolled fine
1 can deveined shrimp
1 8 oz. package frozen King Crab (thawed)
⅔ cup milk
2 eggs beaten lightly
¼ cup melted butter
1 can cream of mushroom soup

If the liquor in shrimp is not too salt, use part of liquid with milk making ⅔ cup altogether. Mix all ingredients. Put in buttered casserole and bake an hour or a little more in 350° oven. Try with silver knife and if it comes out clean it is done. Do not overcook. Add a little more milk if you think it needs it. *Favorite Recipes*

BAKED CHICKEN SALAD

1½ cups diced cooked chicken
1 can condensed chicken soup (10 oz.)
1 cup diced celery
2 tsp. minced onion
½ cup walnuts chopped
½ tsp. salt
¼ tsp. pepper
1 tbsp. lemon juice
¾ cup mayonnaise
3 hard-cooked eggs
1 cup crushed potato chips

Combine chicken, soup, celery, onion, walnuts, salt, pepper, lemon juice, mayonnaise, and sliced eggs in a casserole. Top with potato chips. Bake at 350° for 20 minutes. Garnish with parsley. Serve with cranberry sauce. Serves four. *White Mountain Cookery*

GRANDMA RICKER'S SPICED PEARS

For every 7 lbs. of pears, allow 4 lbs. of white sugar and 1½ pts. vinegar. To every qt. of this sirup when it comes to a boil, add 1 tbsp. each of cinnamon and cloves loosely tied in cheesecloth and simmer 15 minutes. Then put in the pears and keep just to the simmering point for ½ hour or until tender. (Do not cook soft.) When they are easily pierced with a broomstraw, remove from the fire. Lift out one by one with perforated spoon and put in glass jars. Bring the sirup to the boil and pour over pears boiling hot. Seal. *White Mountain Cookery*

SWEET POTATO CORNBREAD

3 cups mashed sweet potatoes
2 eggs
1 cup sifted corn meal
½ tsp. salt
¼ tsp. nutmeg
6 tbsp. sugar
½ cup sweet milk
2½ tsp. baking powder

Boil and mash enough sweet potatoes to make 3 cups full. Beat whole eggs into potatoes and add cup of corn meal, salt, nutmeg, sugar, milk. Mix well. Add baking powder last. Drop by tablespoonsful on greased pan. Set oven at 450° and bake 25 minutes or until firm and brown on bottom and edges. Put under flame and brown quickly on top. Makes 24. *Favorite Recipes of The Lower Cape Fear*

COFFEE ANGEL PIE

1 can condensed milk
1 cup strong coffee
1 cup black walnuts (finely chopped)
1½ cups cream
Use any 4 egg meringue shell recipe made in 9" pie plate

Mix condensed milk with cup strong coffee chilled. Add cream stiffly whipped. Pour mixture into the meringue shell. Sprinkle generously with finely chopped black walnuts. Freeze. Serves 6.
Favorite Recipes of The Lower Cape Fear

DINNER

COLD CUCUMBER SOUP

1 medium onion, sliced
1 tbsp. corn oil
3 medium cucumbers, diced
3 cups chicken broth
1¼ tsp. salt
¼ tsp. pepper
½ tsp. sweet basil
¼ cup dry vermouth
1 tsp. cornstarch

Saute onion in heated oil 5 minutes. Add cucumbers and cornstarch

blended with a little stock. Add remaining stock, salt, pepper, and basil. Stir aud bring to a boil. Cover and simmer 25 minutes. Force through sieve or whir in blender. Stir in vermouth and chill. Yield: 6 cups (or more if blender is used.) *Essex County Cooks*

BARBECUED SHORT RIBS

Order 3 lbs. beef short ribs cut into 2" squares. Brown well in 2 tbsp. fat in dutch oven. Remove; set aside. In same fat saute for 2 min. the following:

1 minced clove garlic
½ cup minced onions
½ cup minced celery
Stir in 2 tbsp. cornstarch
1 8 oz. can tomato sauce
½ cup water
1 tsp. salt
⅛ tsp. each of pepper aud allspice
1 tbsp. prepared mustard, vinegar

Add meat, and simmer for 1½ to 2 hrs. or until fork teuder. Serves 4. *The Bedford Sampler*

FOUR BEAN SALAD

1 lb. can green beans drained
1 lb. can yellow beans drained
1 lb. can red beans drained
1 lb. can lima beans drained
1 medium onion (thinly sliced)
1 medium green pepper
½ cup sugar
½ cup wine vinegar
½ cup salad oil
½ tsp. dry mustard
2 tsp. snipped parsley
½ tsp. crumpled dried tarragon
½ tsp. basil

Place first six ingredients in a large bowl, thoroughly combine the remaining ingredients and drizzle over the entire surface of the vegetables. Cover, marinate several hours or overnight, stirring once or twice. Just before serving, stir and drain. Serves 12. *The Malone Cook Book*

CABINET PUDDING

1 cup milk
1 cup molasses
1 egg
3 cups flour
1 tsp. salt
1 tsp. soda
1 cup currants or raisins
1 cup candied fruit
1 cup suet (cut small)
1 tsp. nutmeg and cinnamon
½ tsp. cloves and allspice

Mix together and steam for 3 hours. Serve with vanilla or hard sauce. *Favorite Recipes*

MARBLE SQUARES

1 cup butter or margarine
1½ tsp. vanilla
2 cups sugar
4 eggs
2 cups sifted flour
½ tsp. salt
1 cup chopped walnuts
2 squares chocolate

Melt chocolate and set aside to cool. Cream butter, vanilla aud sugar together until light and fluffy. Add eggs one at a time, beating well after each. Add flour and salt; mix until blended. Stir in nuts. Divide batter in half; add cooled chocolate to one half. Drop batter alternately by teaspoonsful into greased pan 13" x 9" x 2". Run knife through batter several times to marbleize. Bake in moderate oven 350° about 45 minutes. Cool and frost with chocolate frosting. Cut into squares. *The Bedford Sampler*

The House Proud Cook Book—Mrs. C. W. Brown, Acton-Boxboro-Stow Unit, Emerson Hospital Auxiliary, Acton, Mass. 01720

The Malone Cook Book—Mrs. J. M. Cantwell, Jr., Malone, New York 12953

The Copper Kitchen—Mrs. R. H. Bernier, 12 Corey Lane, Niantic, Conn. 06357

Favorite Recipes—Mrs. Robert Crosby, Immanuel Church Couples Club, 140 Bridge St., Beverly, Mass. 01915

White Mountain Cookery—Lois L. Hunt, Secretary, Episcopal Churchwomen of Christ Church, North Conway, N.H. 03818

Favorite Recipes of Lower Cape Fear—The Ministering Circle, P.O. Box 1809, Wilmington, N.C. 28402

Essex County Cooks—Brookwood-Shore Cookbook Committee, c/o Brookwood School, Manchester, Mass. 01944

The Bedford Sampler—Bedford Free Public Library, Bedford, Mass. 01730

TABLE OF MEASURES

Apothecaries

1 scruple=20 grains
1 dram=3 scruples
1 ounce=8 drams
1 pound=12 ounces

Avoirdupois

1 pound=16 ounces
1 hundredweight=100 pounds
1 ton=20 hundredweight=2000 pounds
1 long ton=2240 pounds

Cubic Measure

1 cubic foot=1728 cubic inches
1 cubic yard=27 cu. feet
1 register ton (shipping measure)=100 cubic feet
1 U. S. shipping ton=40 cu. ft.
1 cord=128 cubic feet
1 U. S. liquid gallon=4 quarts=231 cubic inches
1 imperial gal.=1.20 U. S. gals.=0.16 cubic feet
1 board foot=144 cubic inches

Dry Measure

2 pints .....=1 quart (qt.)
4 quarts .....=1 gallon (gal.)
2 gallons or 8 quarts .....=1 peck
4 pecks .....=1 struck bushel

Linear Measure

1 foot=12 inches
1 yard=3 feet
1 rod=5½ yards=16½ feet
1 mile=320 rods=1760 yards=5280 feet
1 U. S. nautical mile=6076.1033 feet
1 knot=1 nautical mile per hour
1 furlong=⅛ mile=660 feet=220 yards
1 league=3 miles=24 furlongs
1 fathom=2 yards=6 feet
1 chain=100 links=22 yards
1 link=7.92 inches
1 hand=4 inches
1 span=9 inches

Square Measure

1 square foot=144 square inches
1 sq. yard=9 sq. feet
1 sq. rod=30¼ sq. yards=272¼ sq. feet
1 acre=160 sq. rods=43560 sq. ft.
1 sq. mile=640 acres=102400 sq. rods
1 sq. rod=625 square links
1 sq. chain=16 square rods
1 acre=10 square chains

Troy

(Used in weighing gold, silver, jewels)

1 pennyweight=24 grains
1 ounce=20 pennyweight
1 pound=12 ounces

Household Measures

120 drops water=1 teaspoon
60 drops thick fluid=1 teaspoon
2 teaspoons=1 dessertspoon
3 teaspoons=1 tablespoon
16 tablespoons=1 cup
1 cup=½ pt.
1 cup water=½ lb.
3 tablespoons flour=1 oz.
2 tablespoons butter=1 oz.
3 teaspoons soda=½ oz.
4 teaspoons baking powder=½ oz.
2 cups granulated sugar=1 lb.
3¾ cups confectioners' sugar=1 lb.
2½ cups wheat flour=1 lb.
3½ cups whole wheat flour=1 lb.
2½ cups buckwheat flour=1 lb.
5⅓ cups coffee=1 lb.
6½ cups tea=1 lb.
2 cups lard=1 lb.
2 cups butter=1 lb.
2 cups corn meal=1 lb.
2 cups powdered sugar=1 lb.
2¾ cups brown sugar=1 lb.
2⅝ cups raisins=1 lb.
2⅜ cups currants=1 lb.
9 eggs=1 lb.

Liquid Measure

4 gills=1 pint (O.)
2 pints=1 quart (qt.)
4 quarts=1 gallon (gal.)
63 gallons=1 hogshead (hhd.)
2 hogsheads=1 pipe or butt
2 pipes=1 tun

Metric

1 inch=2.54 centimeters
1 meter=39.37 inches
1 yard=0.914 meters
1 mile=1609.344 meters=1.61 kilometers
1 sq. inch=6.45 sq. cm.
1 sq. yard=0.84 sq. m.
1 sq. mile=2.59 sq. km.
1 acre=0.40 hektars
1 cu. yard=0.76 cubic meters
1 cu. meter=1.31 cubic yards
1 liter=1.06 U. S. liquid quarts
1 hektoliter=100 liters=26.42 U. S. liquid gallons
1 U. S. liquid quart=0.94 liters
1 U. S. liquid gallon=3.76 liters
1 metric ton=1000 kilograms
1 kilogram=2.20 pounds
1 pound avoirdupois=0.45 kilograms

OLD-FASHIONED PUZZLES

(For answers, see page 124)

I

You can't tell farmer William Jones that cows don't think very well. Here's why: Some years back, his old Jersey cow was standing 5 feet from the center of a railroad bridge which had the usual girders along the sides within less than a cow's width from the tracks. Suddenly she spied "The Lightning Express" from Boston just twice the length of the bridge from the bridge entrance-coming at exactly 90 miles per hour. She wasted no time in idle speculation but dashed toward the train and saved herself by the narrow margin of one foot. If she had followed the human instinct by running away from the train, she would have failed by three inches to clear the bridge in time. Can you tell the length of that bridge?

(by G. R. Ray, DeKalb, Il.)

II

In a certain town, there are three different sales taxes effective: state, county and city. They are 4%, 3%, and 2%, respectively. The state tax is levied on the amount of the purchase plus the total of the other two taxes. The other two taxes are assessed under similar arrangements. What is the actual total percentage rate of sales tax?

(by Ray Corson, Colorado Springs, Co.)

III

A man wants to insulate his peaked-roof attic. He bought 1116 square feet of insulation for the 4 walls of the attic. If the floor area is 720 square feet and the height of the attic is 9 feet at the peak, what then is the length and width of the attic?

(by Steven Schomer, Beachwood, Oh.)

IV

I have a gold chain with seven links connected in a straight line. I hire a man to work for me for seven days. At the end of each word day, he will receive one link of chain. However, I will cut the chain only once—and only through one link. How will I do it?

(by Marvin Seals, Clay, N.Y.)

V

Name the last number in this series: 77, 49, 36, 18, ?

(by Mrs. Wm. Niedringhaus, Bismark, Mo.)

VI

How can you mathematically take 45 from 45 and leave 45?

(by Mrs. M. Grosgrove, Absecon, N.J.)

VII

Mrs. A started out to call on Mrs. B but when she reached the home of the latter, she found that Mrs. B had been gone just 11 minutes on her way to Mrs. A's. So Mrs. A at once returned to her home. When Mrs. B reached the home of Mrs. A, she learned that Mrs. A had been gone just 15 minutes, so she started for her home. On the return trip, the two ladies met midway between their homes at just 4 o'clock. At what time did Mrs. A leave home to call on Mrs. B?

(by G. R. Ray, DeKalb, Il.)

VIII

John's cousin is 35 years older than John who is 39. John's sister is 5 years younger than John. John's uncle is 17 years older than John's cousin. And John's other sister is 23 years younger than her uncle. How old is John's other sister?

(by Greg Curcio, New Britain, Ct.)

IX

Said farmer Jones to his wife, Maria, "If we sell off 75 chickens as I suggest, our stock of feed would last just 20 days longer. But if we buy 100 extra as you propose, we shall run out of chicken feed 15 days sooner." What was the chicken population on the Jones farm?

(by Ray Geandar, Detroit, Mi.)

X

I have a tract of land which I wish to lay out in the form of an equal square and enclose with rail fence 5 rails high so that every rod of fence shall contain 10 rails. I must know how large said square must be to contain as many acres as there are rails enclosing it.

CHARADES, REBUSES, CONUNDRUMS, ENIGMAS, etc.

(For answers, see page 124)

I

My first I can throw,
My second's In low
And my third is two thirds of my age.
While my fourth is not old,
My whole will unfold
A man on a hlstory page.
(by J. H. Drake, Vanceboro, Me.)

II

A weaithy old man on his deathbed said to his two only sons, both of whom owned beautiful race horses, "Go run a race and to the owner of the iosing horse I will leave all my money." What did the sons do?
(by B. C. Sawyer, Ellsworth, Me.)

III

What do you call a hoola hoop with a nail in it?
(by Mrs. William Eck, Zionsville, Pa.)

IV

My first is in sky,
But not in our moon.
My second in planet,
And likewlse Neptune.
My last three do follow,
Topping a king.
My whole is as nothing,
And yet can be seen.
(by M. V. Clark; Covington, Ky.)

V

Connect all the dots shown here without lifting the pencil from the paper and uslng only four straight lines:

(by D. M. Dodgen, Ft. Worth, Tx.)

VI

What is the difference between (a) a poison-pcn ietter and a colored candle? (b) a woman starting to cook a meal and a forgotten chicken on a barbecue spit? and, (c) a laboratory technlcian and a magician's apprentice?
(by Marjorie C. Thompson, Nashua, N.H.)

VII

An airplane flylng from Denver to Cheyenne has a crew of three: a pilot, a navigator, and a steward. Their names are Brown, Black, and White, but not necessarlly in that order. There are also three passengers on the plane, named Mr. Brown, Mr. Black and Mr. White.

Mr. White's income is $9,999.99.

Mr. Black llves in Cheyenne.

The steward lives just halfway between Denver and Cheyenne. His nearest neighbor, who is one of the passengers, has an income exactly twice his own. The steward's namesake lives in Denver.

Brown is a better chess player than the navlgator.

Who is the pilot?
(by Ray Corson, Colorado Springs, Co.)

VIII

My first part's in Venice
though never with tennis.
My second I am at odd times.
My third's in a male,
and, please, wlthout fail,
Take my fourth with just lemon,
not llmes.

My fifth comes with many,
In fact with just any,
My slxth can be short iike in "snap."
But my last is in May
and with that I can say,
That my whole has our soul in a trap!
(by D. H. Judson, Lake Placid, N.Y.)

IX

(a) Take the number of the Ides month, (b) add the day Cupid comes on and (c) multiply that by the number of inches in a foot. (d) Subtract the number in a cubit and, (e) if all cats are black, add 10; if some cats are black, divide by 6; if no cats are black, multiply by 9. (f) Convert and add 20 fluid ounces into pint(s) and (g) subtract two fortnights. Your answer should be equal to the number of inches in a hand.
(by Al Menace, N. Haledon, N.J.)

DEAR READER: We invite you to contribute to this and/or the opposite page. It is essential that all submissions be original, unpublished material. We will pay $5 for each puzzle, riddle, enigma, etc. used. Closing date for the 1972 edition is April 1, 1971. Entries become the property of YANKEE, INC. and cannot be returned or acknowledged. Send to Puzzles, Yankee, Inc. Dublin, N.H. 03444.

WHO MADE NANKEY INTO YANKEE DOODLE?

by Dorothy Cheney Quinan

Not many are aware that the national air Yankee Doodle was, once upon a time, a nursery rhyme sung to children as far back as Shakespeare's time. Later the tune (Nancy Dawson) as well as the style of words, was in vogue a century and a quarter before the American Revolution. An early song, composed in derision of a British villain began:

"Nankey Doodle came to town,
Riding on a pony,
With a feather in his hat,
Upon a macaroni."

A "doodle" in old English dictionaries is a "sorry, trifling fellow." A "macaroni" is defined as a knot on which the feather was fastened, but actually, a "macaroni" was a hair-style, effected by a group of American loyalists who were aping the wealthy British encamped in New York. The British had picked up the hair style from foppish young Oxford students in England who had formed a club named for the famous dish, "macaroni." The Macaroni was a toupee, which rose so high above the forehead that in order to lift the tiny tricorn hat that sat on top of the hair-piece, the dandy had to use his gold-tasseled walking stick .The wearer of one was also called a "Macaroni," the "swell" of his day. He wore clothes so ornate, be-ruffled, be-frogged, and festooned, not to mention wearing a bunch of fresh flowers in his buttonhole, as to make our present "flower children" look drab indeed. If the duck-tail haircut of a few years ago, or the male long-hair styles of today seem absurd, what of the "staircase," the "snailback," the "royal bird" the "she-dragon" of Revolutionary days, worn by this same avant-garde?

When disaffected Americans tried to imitate their British cousins, they had neither the money nor the materials to get the proper effect, and looked as ludicrous to British eyes as our poor troops, with their ugly home-spun uniforms.

A surgeon in the British army at Albany, in 1755, a certain Dr. Schuckburg, composed a song to the Nancy Dawson air, now known in New England as "Lydia Fisher's Jig." He meant to deride the uncouth appearance of our poverty-stricken and ill-equipped New England troops assembled there, and called it "Yankey" instead of "Nankey Doodle."

The air was popular with the British as martial music; and

when, in 1768, British troops arrived in Boston harbor, "Yankee Doodle" was the song they played. The change in spelling to Yankee was not made until after the Revolution.

Dr. Thacher, in his Military Journal, says that a farmer of Cambridge, Massachusetts, named Jonathan Hastings, who lived about the year 1713, used it as a favorite cant word to express excellence, as a *yankee* good horse or *yankee* good cider. The students of Harvard, hearing him use it a great deal, adopted it, and called him Yankee Jonathan; and as he was a rather weak man, the students, when they wished to denote a character of that kind, would call him Yankee Jonathan. Like other cant words, it spread, and came finally to be applied to the New Englanders as a term of reproach. Some suppose the term to be the Indian corruption of the word English—Yenglees, Yangles, Yankles, and finally Yankee.

But, like other cant words, with the passage of centuries, the meaning reversed itself. What started out as a derisive word came to connote certain virtuous qualities, especially if coupled with another word, such as integrity, thrift, stick-to-itiveness and ingenuity.

To the dismay of the British, they learned that he who laughs last, is not the one who has just seen the joke. For their song, derisive in intent, was adopted by the rough-and-ready spirits of the American Army for their own, and smote the delicate ears of the British in defeat on many occasions. When five-thousand seven-hundred and ninety-one British, Germans and Hessians, laid down their arms to thirteen thousand American soldiers and militia, at the surrender of Burgoyne to Gates at Saratoga, they did so to the lively tune of Yankee Doodle."

Thus the British learned that fancy uniforms do not make the soldier, nor name-calling disturb him.

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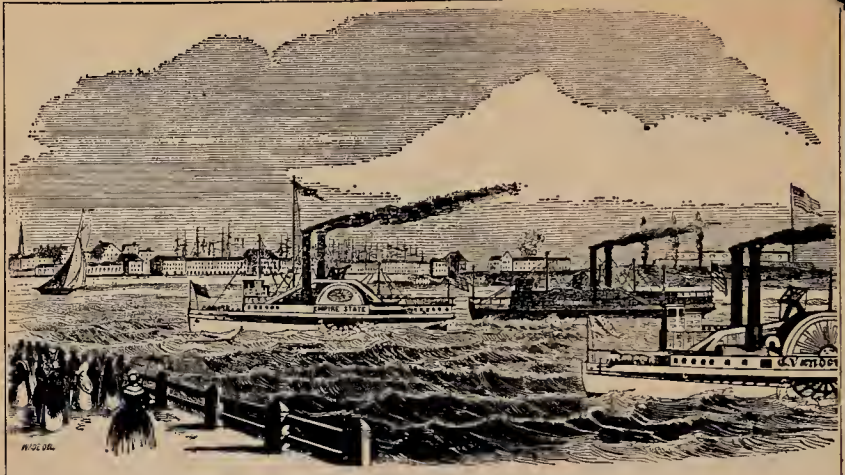


NAUTICAL RULES OF THE ROAD

For those who desire more detail, order from Superintendent of Documents, U.S. Gov't. Printing Office, Washington, D.C. the following book: AMERICAN PRACTICAL NAVIGATOR, 1500 pages, Price $7.00.

Unlighted red buoys, with even numbers, must be left to starboard returning to port (Red Right Return).

Black buoys, with odd numbers, must be left to port entering from seaward.

Buoys with black and white vertical stripes are placed in midchannel and may be passed close to on either hand.

Buoys with red and black horizontal stripes indicate obstructions on either side of them. If the top band is red, go to port of the buoy; when the top band is black, leave it to starboard.

LIGHTED BUOYS

Red lights, whether steady or flashing, are on the starboard side of the channel only.

Green lights, steady or flashing, are only on the port side.

White lights are on midchannel black and white striped buoys and will flash the Morse Code letter "A", (.—.).

Red and black lighted buoys can have white flashing lights.

RULES FOR VESSELS MEETING

STEAM VESSELS PASSING

One short blast: I intend to go to starboard.

Two short blasts: I intend to go to port.

Three short blasts: My engines are astern.

STEAM VESSELS MEETING AT RIGHT ANGLE

One short blast, the ship to starboard stops, waits and lets the port vessel go under her stern.

Two blasts mean the opposite.

LIGHTED VESSELS PASSING AT NIGHT

1. Starboard light is Green. Port light is Red.
2. Vessels approaching head-on leave each to Port — or Red to Red
   or
   vessels approaching can go by each to Starboard — Green to Green.
3. But if a Red light appears to Starboard or a Green light to Port, stop and, if needed, go ASTERN until the danger of collision is averted.

SAILBOATS

Sailboats, as a rule, have right of way over all steam or water boats. Exceptions to this rule occur when sailboats are in places they obviously should not be, etc.

A sailboat on starboard tack has the right of way.

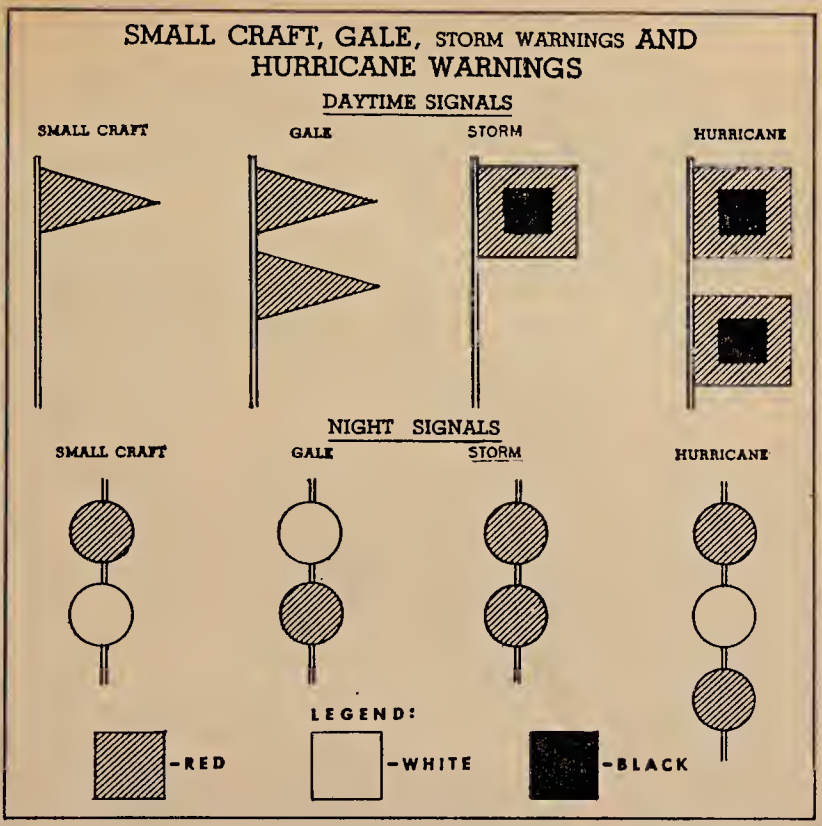
A sailboat approaching a buoy must leave room for another sailboat to round it if this other boat is close enough to have and ask for buoy room.

One sailboat overtaking another down wind may take the latter's wind but if passing to windward will have to luff if the overtaken boat causes it to do so.

Sailboats as well as motorboats are required to carry life preservers for each occupant. The latter must also be licensed and carry fire extinguishers.

Sailboat racing requires a highly professional knowledge of racing rules. These are by and large far more complicated than just general rules of the road.

SMALL CRAFT, GALE, STORM WARNINGS AND HURRICANE WARNINGS



■ AS OF MARCH 1, 1968, the Coast Guard began using new coastal storm warning terms as set forth by the United States Weather Bureau. Those presently in use are shown above.

Small Craft Warning indicates winds as high as 33 knots and conditions dangerous for small craft operations.

Gale Warning indicates winds from 34 to 47 knots.

Storm Warning indicates winds of 48 knots or more — perhaps up to 63 knots.

Hurricane Warning indicates winds of 63 knots or over.

TIDES

Newton's law tells us that gravitational force increases with the mass of the bodies or as the distances between bodies become shorter. Therefore, although the sun's gravitational force does affect our ocean tides, its effect is much slighter than the moon's because the sun is 390 times farther distant from the earth than is the moon. Considering the fact that the sun is 26 million times the mass of the moon, it is clear that proximity is much more important than sheer mass.

When the moon and sun are aligned together as in the case of the new and full moon, they have the greatest effect on the earth and the tides (known as spring tides) are of greatest magnitude. When the moon and sun are farthest out of line with each other during the first and third quarters of the moon, then the so-called neap tides occur.

TIDE CORRECTIONS

Many factors affect the time and height of the tides. The coastal configuration, the time of the moon's southing at the place, and the phase of the moon all contribute their share. This table of tidal corrections, which takes these several factors into account, is a sufficiently accurate guide to the times and heights of the high water at the places shown, inasmuch as high water persists with little change for an hour to either side of the tide's time. No figures are shown for most places on the Gulf of Mexico, since the method used in compiling this table does not apply there, where there is, in general, but one high tide a day and that of small range. For such places and elsewhere where precise accuracy is required, recourse should be made to the Tide Tables published annually by the Environmental Science Services Administration of the U.S. Government.

To obtain the time and height of high water at any place, apply the time difference below to the daily times of high water at Boston (Commonwealth Pier) as they appear on pages 24–46, and the height difference to the daily heights at Boston given on pages 25–47. Where the value in the "height difference" column is marked by an *, height at Boston should be multiplied by this ratio.

	Time Difference h.m.	*Height Difference Ft.*
MAINE		
Bar Harbor	−0 34	+0.9
Belfast	−0 20	+0.4
Boothbay Harbor	−0 18	−0.8
Chebeague Island	−0 16	−0.6
Eastport	−0 28	+8.4
Kennebunkport	+0 04	−1.0
Machias	−0 28	+2.8
Monhegan Island	−0 25	−0.8
Old Orchard	0 00	−0.8
Portland	−0 12	−0.6
Rockland	−0 28	+0.1
Stonington	−0 30	+0.1
York	−0 09	−1.0
NEW HAMPSHIRE		
Hampton	+0 02	−1.3
Portsmouth	+0 11	−1.5
Rye Beach	−0 09	−0.9
MASSACHUSETTS		
Annisquam	−0 02	−1.1
Beverly Farms	0 00	−0.5
Boston	0 00	0.0
Cape Cod Canal		
East Entrance	−0 01	−0.8
West Entrance	−2 16	−5.9
Chatham		
Outer Coast	+0 30	−2.8
Inside	+1 54	*0.4
Cohasset	+0 02	−0.7
Cotuit Highlands	+1 15	*0.3
Dennisport	+1 01	*0.4
Duxbury (Gurnet Pt.)	+0 02	−0.3
Fall River	−3 03	−5.0
Gloucester	−0 03	−0.8
Hingham	+0 07	0.0
Hull	+0 03	−0.2
Hyannis Port	+1 01	*0.3
Magnolia (Manchester)	−0 02	−0.7
Marblehead	−0 02	−0.4
Marion	−3 22	−5.4
Monument Beach	−3 08	−5.4
Nahant	−0 01	−0.5
Nantasket	+0 04	−0.1
Nantucket	+0 56	*0.3
Nauset Beach	+0 30	*0.6
New Bedford	−3 24	−5.7
Newburyport	+0 19	−1.8
Oak Bluffs	+0 30	*0.2
Onset (R.R. Bridge)	−2 16	−5.9
Plymouth	+0 05	0.0
Provincetown	+0 14	−0.4
Revere Beach	−0 01	−0.3
Rockport	−0 08	−1.0
Salem	0 00	−0.5
Scituate	−0 05	−0.7
Wareham	−3 09	−5.3
Wellfleet	+0 12	+0.5
West Falmouth	−3 10	−5.4
Westport Harbor	−3 22	−6.4
Woods Hole (Little Harbor)	−2 50	*0.2
(Oceanographic Inst.)	−3 07	*0.2
RHODE ISLAND		
Bristol	−3 24	−5.3
Middletown	−3 24	−5.5
Narragansett Pier	−3 42	−6.2
Newport	−3 34	−5.9
Pt. Judith	−3 41	−6.3
Providence	−3 20	−4.8
Watch Hill	−2 50	−6.8
CONNECTICUT		
Bridgeport	+0 01	−2.6
Madison	−0 22	−2.3
New Haven	−0 11	−3.2
New London	−1 54	−6.7
Norwalk	+0 01	−2.2
Old Lyme (Highway Bridge)	−0 30	−6.2
Stamford	+0 01	−2.2
Stonington	−2 27	−6.6
NEW YORK		
Coney Island	−3 33	−4.9
Fire Island Lt.	−2 43	*0.1
Long Beach	−3 11	−5.7
Montauk Harbor	−2 19	−7.4
New York City (Battery)	−2 43	−5.0
Oyster Bay	+0 04	−1.8
Port Chester	−0 09	−2.2
Pt. Washington	−0 01	−2.1
Sag Harbor	−0 55	−6.8
Southampton (Shinnecock Inlet)	−4 20	*0.2
Willets Point	0 00	−2.3
NEW JERSEY		
Asbury Park	−4 04	−5.3
Atlantic City	−3 56	−5.5
Bayhead (Sea Girt)	−4 04	−5.3

Continued next Page

Beach Haven	−1 43	*0.24
Cape May	−3 28	−5.3
Ocean City	−3 06	−5.9
Sandy Hook	−3 30	−5.0
Seaside Park	−4 03	−5.4
Wildwood	−3 45	−5.5
PENNSYLVANIA		
Philadelphia	+2 40	−3.5
DELAWARE		
Cape Henlopen	−2 48	−5.3
Wilmington	+1 56	−3.8
MARYLAND		
Annapolis	+6 23	−8.5
Baltimore	+7 59	−8.3
Cambridge	+5 05	−7.8
Havre de Grace	+11 21	−7.7
Point No Point	+2 28	−8.1
Prince Frederick (Plum Point)	+4 25	−8.5
Rehoboth Beach	−3 37	−5.7
VIRGINIA		
Cape Charles	−2 20	−7.0
Hampton Roads	−2 02	−6.9
Norfolk	−2 06	−6.6
Virginia Beach	−4 00	−6.0
Yorktown	−2 13	−7.0
NORTH CAROLINA		
Beaufort	−3 20	−6.9
Cape Fear	−3 55	−5.0
Cape Lookout	−4 28	−5.7
Currituck	−4 10	−5.8
Hatteras		
Ocean	−4 26	−6.0
Inlet	−4 03	−7.4
Kitty Hawk	−4 14	−6.2
SOUTH CAROLINA		
Charleston	−3 22	−4.3
Folly Island	−3 37	−4.3
Georgetown		
Sampit Point	−1 55	*0.36
Pee Dee River Bridge	−1 48	*0.36
Hilton Head	−3 22	−2.9
Myrtle Beach	−3 49	−4.4
St. Helena		
Harbor Entrance	−3 15	−3.4
GEORGIA		
Jekyll Island	−3 46	−2.9
Saint Simon Island	−2 50	−2.9
Savannah Beach		
River Entrance	−3 14	−5.5
Tybee Light	−3 22	−2.7
FLORIDA		
Apalachicola	−7 53	*0.18
Cape Kennedy	−3 59	−6.0
Clearwater	−9 01	−6.4
Daytona Beach	−3 28	−5.3
Everglades City	+16 12	−7.3
Fort Lauderdale	−2 50	−7.2
Fort Myers	−7 45	*0.12
Fort Pierce Inlet	−3 32	−6.9
Jacksonville		
Railroad Bridge	−6 55	*0.10
Key West	+11 24	−9.1
Miami Harbor		
Entrance	−3 18	−7.0
St. Augustine	−2 55	−4.9
St. Petersburg	−9 53	−7.6
Sarasota	−11 31	*0.22
Suwanee River		
Entrance	−9 01	−6.4
CALIFORNIA		
Carmel	−0 22	*0.5
Catalina Island	−1 23	*0.5
Crescent City	−2 05	−4.1
Eureka	+1 35	−3.4
Laguna Beach	−1 38	*0.5
Long Beach	−1 30	*0.5
Los Angeles	−1 33	−4.7
Mendocino	+0 03	−4.4
Monterey	−0 31	−4.9
San Diego	−1 41	−4.3
San Francisco	+0 45	−4.4
Santa Barbara	−1 10	*0.5
Santa Cruz	−0 34	−4.9
Santa Rosa	−0 03	−4.5
OREGON		
Astoria	+2 21	−1.5
Empire-North Bend	+1 48	−3.4
Gold Beach (Rogue R. Entrance)	+1 45	−3.4
Tillamook	+2 28	*0.6
Toledo	+2 05	−2.0
Yaquina	+1 31	−1.9
WASHINGTON		
Aberdeen	+2 09	−0.1
Bellingham	−6 18	−1.4
Cape Alava (Ozette)	+1 19	*0.8
Cape Flaherty	+1 26	*0.8
Columbia River Entrance (Ilwaco)	+1 35	−2.2
Everett	−6 30	+1.1
Lapush	+1 12	*0.9
Long Beach	+1 07	*0.8
Pacific Beach	+1 10	*0.9
Port Townsend	−7 04	−1.6
Seattle	−6 21	+1.3
South Bend	+2 08	−0.2
Tacoma	−6 14	+1.8
Westport (Ocean)	+1 07	*0.9
BRITISH COLUMBIA		
Vancouver	−5 25	+4.2
ALASKA		
Anchorage	−4 58	+17.5
Juneau	+3 08	+6.1
Kodiak	+1 53	−1.7

Example: The figures for Full Sea in Columns 10 and 11 of the left hand Calendar pages 24–46 are the times of high tide at Commonwealth Pier in Boston Harbor. The heights of these tides are given on the right hand pages 25–47. The heights are reckoned from Mean Low Water: each day has a set of figures—upper for the morning—and lower for the evening. The conversion of the times of the tides at Boston to those of Miami is given by way of illustration.

Example: Apr. 18. See page 30, column 10, for time; page 31 for height.

BOSTON		MIAMI	
High Tide (from page 30)	4:15 A.M.E.S.T.	High tide (Boston)	4:15 A.M.E.S.T.
April 18		Correction above	−3.00
		High tide (Miami)	1:15 A.M.E.S.T.
Height (from page 31)	9.4 feet	Height (Miami) (9.4 x 0.3)	2.8 feet

Courtesy American Automobile Association

Auto Laws 1970

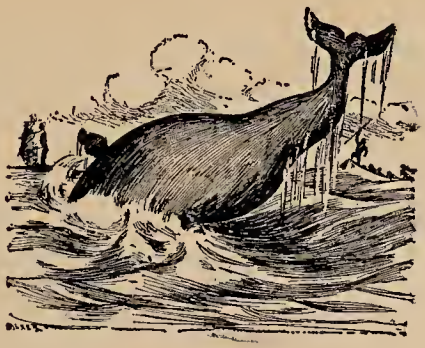
State	Max. Speed Open Hwy. (R–Reasonable)	Date Regis. Expires (Incl. Grace)	Driving License Minimum Age	Gasoline Tax	Per Cent Sales Tax	Non-R. Days of Stay[1] (R–Reciprocal)	Min. Cost of Regis. (3M lbs.–100 HP)	Cost Term Driver's License	Chem. Test Law
Ala.....	60–50N	11/15	16h	$.07	1½	30	$13.75	$4.25—2Y	C
Alaska..	50	5/31	16a	.08	—	90	30.00	5.00—3Y	C
Ariz.....	50–45N	3/1	18a	.07	3	180[4]	6.25	2.50—3Y	C
Ark.....	60	[2]	14ac	.075	3	90[5]	12.00	6.00—2Y	C
Cal.....	65	12/31	16f	.07	4†	[3]	11.00†	3.00—3Y	C
Colo....	60	2/28	21e	.07	3	30	7.50	2.25—3Y	C
Conn....	R	[2]	16eft	.12	5	60	15.00	8.00—2Y	C
Del.....	60	[2]	16f	.07	—	90	20.00	10.00—4Y	C
D.C.....	R	3/31	16	.07	4	R1	30.00	12.00—4Y	A
Fla.....	65–55N	8/20	16aj	.07	3	R	22.22	3.00—2Y	C
Ga.....	60–50N	4/1	16h	.065	3	30	5.50	2.50—2Y	C
Haw....	45	3/31	15i	.085–11	—	10 or[3]	22.50	4.00—4Y	C
Ida.....	60–55N	[2]	16g	.07	3	—	18.00	6.00—3Y	C
Ill.....	65	3/1	16k	.075	4¼	R	18.00	8.00—3Y	A
Ind.....	65	[2]	16†	.08	2	60	12.00	1.50—2Y	C
Iowa....	70–60N	1/31	16g	.07	3	R	12.00†	5.00—2Y	C
Kan.....	70–60N	2/15	16g	.07	3	R	10.00	4.00—4Y	C
Ky.....	70–60N	3/1	16a	.07	5	R	12.50	3.00—2Y	C
La.....	60	[2]	15h	.08	2	R	6.00	2.50—2Y	C
Me.....	45	2/28	18at	.08	5	R	15.00	5.00—2Y	C
Md.....	50	3/31	16fk	.07	4	30	20.00	7.00—2Y	A
Mass....	R	[2]	16½fa	.065	3	R	6.00	10.00—4Y	C
Mich....	65–55N	3/31	16afg	.07	4	90	12.00	6.00—3Y	C
Minn....	65–55N	3/1	16ef	.07	3	R	5.25†	3.00—4Y	C
Miss....	65	10/31	15h	.07	2	30	12.00	5.00—2Y	B
Mo.....	65–60N	[2]	16ji	.05	3	—	38.00	2.00—3Y	C
Mont...	R–55N	2/15	15ae	.07	1½†	60	10.50	4.00—2Y	A
Nebr....	65–60N	2/28	16gm	.085	2	R	15.00	6.00—4Y	C
Nev.....	R	[2]	16n	.06	3	[3]	6.50	5.00—4Y	C
N.H.....	60	3/31	18f	.07	—	R	15.00	10.00—2Y	C
N.J.....	50	[2]	17o	.07	3	60	18.00	4.00—1Y	C
N.M....	70–60N	3/2	16d†	.07	2	30	30.00†	3.25—2Y	C
N.Y.....	50	[2]	18bp	.07	3	30	22.50	5.00—3Y	C
N.C.....	65	2/15	18af	.09	2	R	14.00	3.75—4Y	C
N.D....	60	12/31	16uh	.07	4	R	32.00	3.00—1Y	C
Ohio....	60–50N	4/15	16e	.07	4	R	10.00	4.00—3Y	C
Okla....	65–55N	1/31	16d	.065	2	60	21.15†	6.00—2Y	C
Ore.....	55	[2]	16g	.07	—	R	10.00	3.00—2Y	C
Pa.....	55	3/31	18b	.07	6	R	10.00	4.00—2Y	C
R.I.....	50–45N	3/31	16	.08	5	R	11.00	8.00—2Y	C
S.C.....	60–55N	10/31	16h	.07	4	10	5.30	2.00—4Y	C
S.D.....	70–60N	3/31	16g	.07	3	60	17.00	3.00—4Y	C
Tenn....	65–55N	3/31	16g	.07	3†	30	18.50	4.00—2Y	C
Tex.....	70–65N	4/1	16f	.05	3	R	12.30	6.00—4Y	C
Utah....	R	2/28	16	.07	4½	—	6.00	5.00—4Y	C
Vt.....	50	2/28	18b	.08	4	R	32.00	6.00—2Y	C
Va.....	55	4/15	18ad	.07	2	60	15.00	9.00—4Y	C
Wash....	60	1/30	16df	.09	4.5	60	9.40†	5.50—2Y	C
W. Va...	55	[2]	16as	.07	3	30	20.00	5.00—4Y	C
Wis.....	65–55N	[2]	16g	.07	4	R	18.15	5.00—2Y	A
Wyo....	65	3/1	16kt	.07	3	30	7.50	2.50—3Y	B

[1]Applies to non-residents. "Reciprocal" means same as home state. Those intending permanent residence must buy new plates and secure new driving license at once. Employment or placing children in public school is to reside permanently. [2]Staggered. [3]Until expiration of home registration. [4]Visitor's permit req. after 10 days. [5]Visitor's permit after 30 days.

(A). State has drunken driving test law. (B). State does not. (C). Law with imp. cons. prov. (D). Same but refusal doesn't auth. license susp.

(a) Under 18 must have consent of par. or guard. (b) Jr. p'mt 16; (c) 14–16 need accompaniment by lic. op.; (d) Instruction p'mt 15½; (e) Provisional license to 21; (f) 16–18 app. must have completed driver course; (g) Jr. p'mt 14; (h) Learner's p'mt 15; (i) Under 20 need par./guard. consent; (j) Jr. P'mt 15; (k) Under 21 need par./guard. consent & proof of fin. responsibility; (l) Visitor's permit req. if stay exc. 14 days; (m) 14–16 accomp. by lic. driver over 21; (n) With consent of par./guard.; (o) 16 for agric. pursuits; (p) Exc. some cities; (q) Provisional lic. 16–18; (r) 15½ if drive course comp.; (s) Under 21 birth certif. or par. sig. req.; (t) Learner's permit not req.; (u) Jr. permit 13–15. †Plus various adj.

Stud tires now (1970) disallowed in Ga., La.; Miss.; and Honolulu. 21 states, use limited from 10/1–5/31.



A REAL LIVE JONAH!

We were recently reminded of the true story of a man SWALLOWED by a whale who lived to tell about it! It concerns one James Bartley, a crewman aboard The Star of the East, a whaling ship off the Falkland Islands in February of 1891. Bartley was a member of the boat crew that was overturned by a large bull whale already wounded by a harpoon thrust. When another boat picked up the survivors, Bartley and one other man were missing. Later that afternoon, two other boats saw the same whale, captured it and drew it alongside. The Star of the East Capt. Mike Dolan deseribes what then took place:

"With lines around its stomach, the crew hoisted the whale to the deck of the ship. Something moved inside the covering. Working feverishly with sharp knives, they quickly slit the stomach of the whale open and found James Bartley quivering and unconseious.

"Dashing salt water over the still form of Bartley they seemed to revive him. After he had been washed and a few sips of brandy forced through his pale lips, he was carried to the ship's cabin.

"For two weeks he hovered near death. When he finally reeovered, he told a weird tale.

"Remembering being dashed high in the air when the giant whale struek the boat with his tail, Bartley said he heard a rumbling sound like a train roaring over a bridge. He imagined the noise was caused by the whale pounding the sea. In the darkness he said he made an effort to reaeh out and his hand touched a slick substance which yielded to his feeble efforts to escape. Then he felt himself being drawn forward into a ehamber where there was more air.

"Each time he tried to crawl forward in the black chamber, some invisible foree seemed to draw him back. Then his terrible plight dawned upon him. He was inside the body of a whale. The heat was terrific. Weak from the strain and the heat, he sank into oblivion. Death seemed dreadfully near. He collapsed and remembered nothing until he awakened in the ship's cabin. And although his skin never quite regained its natural color, he regained his strength and lived for many years, eontinuing to fish in the dangerous waters where he almost met his doom."

Other versions of this story and similar ones are told, and of whales that attacked ships.

Of particular interest is the tale of the whaler "Harmony" which was hunting whales off Brazil Banks in 1796 when the lookout reported a gigantic whale acting "oddly". With no advance warning the animal swam away from the ship, wheeled and speeded toward the vessel. When almost upon her, the whale leapt from the sea and vaulted onto the Harmony's deck, straddling the entire ship. The deck crumbled, the masts sprung loose and within seconds the Harmony split open and began to sink.

Fortunately, a neighboring ship was nearby and the entire crew was rescued but the whale never left its perch until the Harmony settled beneath the waves. Then it revived and went its merry way. Some observers think the whale was a wounded malicious beast; others felt that this particular whale just had an uncontrollable urge to jump over an obstacle. Who knows!

GESTATION AND REPRODUCTION TABLE

	Proper age for first mating	Period of power of reproduction in years	No. of females for one male	Period of gestation and incubation		
				Shortest days	Mean days	Longest days
Mare	3 yrs.	10 to 12		325	336	352
Stallion	4 "	12 to 15	20 to 30			
Cow	18-24 mos.	10 to 14		235	282	300
Bull	12-18 "	10 to 12	30 to 40			
Ewe	18 "	6		145	147	152
Ram	12-14 "	7	35 to 45			
Sow	9 "	6		110	114	120
Boar	9 "	6	8 to 12			
She Goat	18 "	6		147	151	155
He Goat	18 "	5	20 to 30			
Ass	3 yrs.	10 to 12		356	367	378
Jack	4 "	12 to 15	20 to 30			
She Buffalo	18-24 mos.	8		309	315	325
Bitch	16-18 "	8		58	63	67
Dog	12-16 "	8				
She Cat	12 mos.	6		58	60	64
He Cat	12 "	10	6 to 8			
Doe Rabbit	6 "	5 to 6		25	30	35
Buck Rabbit	6 "	5 to 6	30			
Cock	6 "	5 to 6	12 to 18			
Hen		5 to 6		19	21	24
Turkey				24	26	30
Duck				28	30	32
Goose				27	30	33
Pigeon				16	18	20
Pea Hen				25	28	30
Guinea Hen				20	23	25
Swan				40	42	45
Hen or Duck's Eggs				22	30	34
Robin's Eggs				13	16	19

REPRODUCTIVE CYCLE IN FARM ANIMALS

Courtesy F. N. Andrews — Purdue University

	Reoccurs if not Bred (Days)	Estrual Cycle incl. Heat Period (Days)		In Heat for		Usual Time of Ovulation
		Ave.	Range	Ave.	Range	
Mare	16	21	10–37	5–6 days	1–37 days	24–48 hours before end of estrus
Sow	19	21	18–24	2–3 days	1–5 days	Usually second day of estrus
Ewe	15	16	14–20	30 hours	20–42 hours	1 hour before end of estrus
Goat	19	20	12–25	36–48 hours	20–80 hours	Near end of estrus
Cow	20	19–20	16–24	16–20 hours	8–30 hours	14 hours after end of estrus
Bitch	180	24		21–28 days		
Cat	120			3–12 days		

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PART THREE

Regional Forecasts

Thus far all the calculations (except for Page 19) in this Almanac have been for Boston. The following pages in this Part III will enable readers to adjust these calculations and weather forecasts for anywhere in the United States.

1. New England — See pages 92, 94
2. East — Except New England — See pages 96, 98
3. Midwest — See pages 100, 102, 104
4. Great Plains — See pages 106, 108
5. Pacific Northwest — See pages 108, 110, 135
6. South — see pages 112, 114

DIRECTIONS FOR USING REGIONAL FORECAST PAGES

Simple and easy directions for using the regional forecast pages which follow appear at the top of each of these pages. However, the following additional information which also applies to these pages should be carefully noted.

Weather Forecasts

The OFA has long been known for its "accurate" weather forecasts. In previous editions these have been made for Boston and New England only, with the proviso these could be used elsewhere by considering the weather as forecast would arrive one day earlier for each Time Zone west of Boston. The versified forecasts in italics next to the Farm Calendars on pages 25–47 are so calculated. In reading the regional forecasts listed above please remember it is impossible today to predict (successfully) the weather for more than a day or two in advance. Every known scientific source for making these 18-months-in-advance forecasts (we go to press in June) has been used. We suggest they will be more useful as weather trends than for the pinpointing of any particular day's weather.

Sun Dials

The column headed "Sun Fast" (pages 24–46) is of primary use to sun dial enthusiasts. The figures therein tell how fast on each day the time indicated by a *properly adjusted and graduated* sun dial will be of the time indicated by a clock. On April 11 sun dial time in Boston will be 15 min. (+15) FAST of Eastern Standard Time (see page 30). The time difference between clock and sun dial time in other cities (see pages 94–114) will be found by subtracting the value of Key Letter I for that city from the Sun Fast time for Boston (given on pages 24–46). The value of Key Letter I for Pittsburgh (see page 98) is +35 min., so sun dial time in Pittsburgh on April 11 will be 20 min. (+15 *minus* 35) SLOW of clock time.

Length of Day

The "Length of Day" for Boston (pages 24–46) tells how long the sun will be above the horizon. It is found by subtracting the time of sunrise from that of sunset for each locality. For other cities, see pages 94–114. For these, after you have determined sunrise and sunset times, subtract the one from the other and you have the length of day.

Moonrise and Moonset

For greater accuracy, include the Constant Additional Correction below.

Longitude of Place	58°–77°	77°–90°	90°–103°	103°–116°	116°–128°	128°–142°	142°–155°
Correction	m 0	m +1	m +2	m +3	m +4	m +5	m +6

BOSTON		PITTSBURGH (Longitude 80° 00′ W.)	
Moonrise (Apr. 12)	9.00 P.M., E.S.T.	Moonrise (Boston)	9.00 P.M.
Key Letter	N	Correction (N from page 98)	+.28
		Constant Additional Correction	+.01
		Moonrise (Pittsburgh)	9.29 P.M., E.S.T.
Moonset	5.46 A.M., E.S.T.	Moonset (Boston)	5.46 A.M.
Key Letter	E	Correction (E from page 98)	+.38
		Constant Additional Correction	+.01
		Moonset (Pittsburgh)	6.25 A.M., E.S.T.

Moon's Place and Age

The moon's place and age is contained on the left-hand Calendar Pages (24–46). This information applies without correction throughout the United States.

Risings and Settings of the Planets

The times of rising and setting of naked-eye planets, with the exception of Mercury, are given for Boston on pages 48–49. To convert these times to those of other localities (pages 94–114), follow the same procedure as that given on those pages for finding the times of sunrise and sunset.

Dawn and Dark

The approximate times dawn will break and dark descend are found by applying the length of twilight taken from the table below to the times of sunrise and sunset at any specific place. The latitude of the place (see pages 94–114) determines the column of the table below from which the length of twilight is to be selected.

BOSTON (Latitude 42° 22′ N.)		PITTSBURGH (Latitude 40° 26′ N.)	
Sunrise (Apr. 11)	5.10 A.M.	Sunrise (see page 98)	5.48 A.M.
Length of Twilight (Col. 3 of table below)	1.33	Length of Twilight (Col. 3 of table below)	1.33
Dawn breaks	3.37 A.M., E.S.T.	Dawn breaks	4.15 A.M., E.S.T.
Sunset	6.20 P.M.	Sunset (see page 98)	6.53 P.M.
Length of Twilight	1.33	Length of Twilight	1.33
Dark descends	7.53 P.M., E.S.T.	Dark descends	8.26 P.M., E.S.T.

LENGTH OF TWILIGHT

Subtract from time of sunrise for dawn.
Add to time of sunset for dark.

Latitude	25°N to 30°N	31°N to 36°N	37°N to 42°N	43°N to 47°N	48°N to 49°N
	h m	h m	h m	h m	h m
Jan. 1 to Apr. 11	1 20	1 26	1 33	1 42	1 50
Apr. 11 to May 3	1 23	1 28	1 39	1 51	2 04
May 3 to May 15	1 26	1 34	1 47	2 02	2 22
May 15 to May 26	1 29	1 38	1 52	2 13	2 42
May 26 to July 23	1 32	1 43	1 59	2 27	—
July 23 to Aug. 4	1 29	1 38	1 52	2 13	2 42
Aug. 4 to Aug. 15	1 26	1 34	1 47	2 02	2 22
Aug. 15 to Sept. 6	1 23	1 28	1 39	1 51	2 04
Sept. 6 to Dec. 31	1 20	1 26	1 33	1 42	1 50

DETERMINATION OF EARTHQUAKES

Note, in this Almanac, on right hand pages, 25-47, the dates when the moon [☾ runs high] or [☾ rides low]. Beginning with the date of the high is the most likely five-day earthquake period in the northern hemisphere, with the low in the southern hemisphere. You will also find on these pages a moon on the Equator notation [☾ on Eq.], twice each month. At this time, in both hemispheres, is a two-day quake period.

HOW THE OFA FORECASTS ARE MADE

All the astronomical forecasts — sunrise, sunset, planets, moonset, moonrise, et al — are made by Arthur T. Wood, Jr. The weather forecasts are made by "Abe Weatherwise" by means of a long-standing formula which goes back to 1792 when this Almanac was founded. In this formula are many factors: Sunspots, Long Range Cycles, Ocean Temperatures, Averages, etc. The factors are weighted in accord with the year intended for calculation — and based, as nearly as possible, on scientific facts and findings. It is well known, however, that science has yet to devise a way to forecast weather successfully, more than a day or two ahead.

1. NEW ENGLAND WEATHER FORECAST

Verification Base: U.S.W.B. at Blue Hill, Mass.

Providence and southern New England temperatures will average 3° above the Boston forecast and although precipitation levels are approximately the same, snow can be rain in many instances.

THE WINTER (NOV. 1970 – APR. 1971) indicates 32° average temperature (2° below the normal of 34°) with precipitation of 20.3", 3.2" below the norm of 23.5". Snowfall of 58" is 9" above average (see also the northern N.E. Skier's Forecast on page 94).

THE YEAR (JAN. – DEC. 1971) will again be colder than normal 2.1° lower) and will have less precipitation (43.7") than normal (46.9").

Nov. 1970: Ave. daily temp. of 39° will be 2.2° lower than normal. Precip. at 4" is average for the month. 1, clear. 2–3, storm, 1" rain. 4–7, clear. 8–9, .2" rain. 10–13, 2.5" rain, N.E. storm. 14–15, fair. 16–17, cloudy. 18–19, drizzle. 20–21, clear. 22–25, .2" rain. 26–27, clear. 28–29, .1" rain. 30, cloudy.

Dec. 1970: Ave. daily temp. of 32° is 2.2° above normal. Precip. at 3.5", incl. 15" snow is .7" less than normal. 1–2, clear. 3–4, .3" rain. 5–7, 1" precip. 2" snow. 8–10, clear. 11–15, storm, 1" precip. 4–6" snow. 16–18, clear. 19–22, .4" rain, thaw. 23–24, clear. 25–26, Christmas, precip. .5", 2-4" snow. 27–30, clear & pleasant. 31, .3" precip. 5" snow.

Jan. 1971: Ave. daily temp. of 27° is 1° above normal. Precip. of 4", incl. 10" snow, is near normal. 1, clear. 2–5, .3" rain. 6–10, clear & cold. 11–15, 1" rain & sleet. 16–17, clear & cold. 18–19, .5" rain & snow mixed. 20–21, .1" rain & thaw. 22–25, clear. 26–27, 1.5" precip. 6–8" snow. 28–29, clear & very cold. 30–31, .5" precip., 2" snow.

Feb. 1971: Ave. daily temp. of 24° is 2° below normal. Precip. of 4.7", incl. 20" snow, is almost 1" above normal. 1, .2" precip., 1" snow. 2–7, clear & warm. 8–10, 1" precip., 3" snow. 11–13, clear & cold. 14–17, 1.5" precip., 6–8" snow. 18–20, clear. 21–25, 2" precip. 10" snow. 26–28, clear, very cold.

March 1971: Ave. daily temp. of 31° is 3.7° below normal. Precip. at 4.2", incl. 13" snow, is normal. 1, clear, very cold. 2–4, 1.3" precip., 8" snow. 5–7, clear & cold. 8, .1" precip., 1" snow. 9–12, clear. 13–15, 1" rain. 16-19, cloudy. 20–22, .5" precip., 4" wet snow. 23–25, raw. 26–27, .4" rain. 28, clear. 29–31, 1.3" rain.

April 1971: Ave. daily temp. of 43° is 2.6° below normal. Precip. of 2.5" is 1.3" below normal. 1–3, clear & cool. 4–6, fair & warm. 7–10, cool. 10–14, stormy with 1" rain. 15–18, unsettled. 19–23, .5" rain. 24–27, clear. 28–30, storm, 1" rain.

May 1971: Ave. daily temp. of 54° is 2.6° below normal. Precip. of 3.9" is slightly above normal. 1–2, cloudy. 3–7, 2" rain. 8–9, clear. 10–12, 1" rain. 13–16, fair. 17–18, .5" rain. 19–23, warm. 24–26, cool with .4" rain. 27–31, warmer & fair.

June 1971: Ave. daily temp. of 65° is normal. Precip. of 1.2" is only ½ of normal. 1, fair, 2–3, showers, .1" rain. 4–8, warmer. 9–10, .5" rain. 11–21, fair & warmer. 22–25, .5" rain. 26–29, cool. 30, .1" rain.

July 1971: Ave. daily temp. of 70° is 1° below normal. Precip. of 3" is .5" below normal. 1–6, fair & warm. 7–8, showers, .2" rain. 9–10, unsettled. 11–12, thunderstorms & hailstones, 2" rain. 13–15, showers, .1" rain. 16–21, fine weather. 22–23, cool. 24, .2" rain. 25, fair. 26, .2" rain. 27–31, warmer.

Aug. 1971: Ave. daily temp. of 67° is 2° below normal. Precip. of 4.6" is 1" above normal. 1–6, hot & sultry. 7–9, 1" rain. 10–12, cooler, cloudy. 13–14, showers, trace of rain. 15–17, fair. 18–19, showers, .1" rain. 20–22, .5" rain. 23–26, fair. 27–28, heavy rain, 3", offshore hurricane. 29–31, nice.

Sept. 1971: Ave. daily temp. of 59° is 3.6° below normal. Precip. of 2.3" is 1.7" below normal. 1–4, clear, beautiful. 5–8, storm, offshore hurricane, 1.3" rain. 9–10, clear. 11–12, .5" rain. 13–17, clear. 18–20, cool with .5" rain. 21–22, cool, showers. 23–28, fair. 29–30, showers.

Oct. 1971: Ave. daily temp. of 50° is 2.4° below normal. Precip. will be 2.5" or 1.2" below normal. 1–4, fair. 5–7, stormy, .5" rain. 8–12, clear & cool. 13–16, unsettled. 17–20, Northeast gale, 2" rain. 21–23, first frost. 24–27, rainy, 28–31, fair.

Nov. 1971: Ave. daily temp. of 40° is 1.2° below normal. Precip. of 6", incl. 3" snow, is 2" above normal. 1, showers. 2–3, fair. 4–6, high gale, 2" rain. 7–11, mild, Indian Summer. 12–13, .5" rain. 14–15, cool. 16–19, storm and 1.5" rain. 20–24, clear & cool. 25–29, Northeast storm, 2" precip., 3" snow. 30, cold.

Continued on page 138

THE LAST LAUGH

by John Mason

Perhaps it was the fact that New Englanders had been established longer on the continent than the other parts of the country (save the South), or perhaps it was just the peculiarity of their dry sense of humor, but nevertheless, New England cemeteries can provide some of the most amusing and often outlandish gravestones in the land. No western man of the prairie would try to create an amusing gravestone up on "boot hill"—lack of time and lack of humor in the situation would squelch that.

But it is entirely possible that a strong religious prejudice on the part of most New Englanders towards the continuance of life after death has led some to treat death humorously. For others, it may have been so deep a tragedy they could not deal with it, except with humor. To still others the headstone became memorials of things they could not say in life, of revenge, of warning, of advice to friends and family who were to follow:

These three are from stones in the cemetery at Nantucket, Massachusetts.

"Under the sod, and near these trees
Lies the body of Solomon Pease;
Pease is not there but—only his pod
He shelled out his soul and it went up to God."

"Here lies the body of Dr. Harwood
A man who nêver voted;
Of such is the Kingdom of Heaven."

"Here lies old Twelve and a Half per cent
The more he had the less he spent;
The more he had the more he craved
O God, can Icabod be saved?"

Did Solomon Pease write the first epitaph about himself—or purchase it as one would a store greeting card from a local stone carver? If so, what kind of a man was he anyway? It is a little easier to understand the next one and how it came to be erected but a little difficult to believe relatives would have left it standing.

By way of introduction, in an old New England town a Mr. Church was bereft of four wives and all were buried in one lot. In his old age he had to move them to a new cemetery. He undertook to do it himself; somehow the bones became hopelessly mixed. His New England conscience would not allow him to use the same headstone, so this is what he did:

"Here lies Hannah Church and probably a portion of Emily"—

Another:

"Sacred to the memory of Emily Church who seems to be mixed with Matilda."

Continued on page 140

Table for Adjusting Sun, Moon, Planet Times on Pages 24-46, 48

1. NEW ENGLAND (EXCEPT BOSTON)

The times of sunrise, sunset, moonrise, moonset (pages 24–46) and the planets (page 48) are for Boston only. The table below gives the corrections to be used for anywhere in New England except Boston. Note the Key Letter for any given day (pages 24–46, 48). Then find the column below in which that Key Letter falls. The figure in that column for the city you seek is the minutes to add or subtract for accuracy of within 5 min. for that city. Example: Jan. 12, sunrise (p. 24) is 7:12 A.M. Key Letter N. Key Letter N for Presque Isle (last col. below) shows +4. So sunrise at Presque Isle will be 7:16 A.M. If a city is not listed, interpolate between nearest two cities. (Further explanations appear on pages 90 and 91.)

City	State	Latitude ° ′	Time Used	Key Letters A-D m	E-H m	I m	J-M m	N-Q m
Bridgeport	Conn.	41 10	EST	+13	+10	+ 9	+ 7	+ 4
Hartford-New Britain	Conn.	41 46	EST	+ 9	+ 7	+ 7	+ 6	+ 5
New Haven	Conn.	41 18	EST	+11	+ 9	+ 7	+ 6	+ 4
New London	Conn.	41 21	EST	+11	+ 9	+ 7	+ 6	+ 4
Norwalk-Stamford	Conn.	41 03	EST	+14	+11	+10	+ 8	+ 5
Waterbury-Meriden	Conn.	41 33	EST	+10	+ 8	+ 7	+ 6	+ 4
Augusta	Maine	44 19	EST	−12	− 7	− 5	− 3	+ 2
Bangor	Maine	44 48	EST	−18	−12	− 6	− 6	0
Eastport	Maine	44 56	EST	−26	−19	−16	−13	− 7
Ellsworth	Maine	44 30	EST	−19	−13	−16	−13	− 2
Portland	Maine	43 39	EST	− 8	− 5	− 3	− 2	+ 2
Presque Isle	Maine	46 40	EST	−29	−17	−13	− 7	+ 4
Brockton	Mass.	42 05	EST	+ 1	0	0	− 1	− 1
Fall River-N. Bedford	Mass.	41 42	EST	+ 3	+ 1	0	0	− 2
Lawrence-Lowell	Mass.	42 42	EST	− 1	0	+ 1	+ 1	+ 2
Pittsfield	Mass.	42 27	EST	+ 8	+ 9	+ 9	+ 9	+ 9
Springfield-Holyoke	Mass.	42 06	EST	+ 7	+ 6	+ 6	+ 6	+ 5
Worcester	Mass.	42 16	EST	+ 3	+ 3	+ 3	+ 3	+ 3
Berlin	N. H.	43 58	EST	− 8	− 3	0	+ 2	+ 8
Keene	N. H.	42 50	EST	+ 2	+ 4	+ 5	+ 6	+ 7
Manchester-Concord	N. H.	42 59	EST	− 1	+ 1	+ 2	+ 3	+ 4
Portsmouth	N. H.	43 10	EST	− 4	− 2	− 1	0	+ 1
Providence	R. I.	41 50	EST	+ 3	+ 3	+ 1	+ 1	0
Brattleboro	Vt.	42 50	EST	+ 4	+ 5	+ 6	+ 7	+ 8
Burlington	Vt.	44 28	EST	+ 1	+ 6	+ 9	+11	+17
Rutland	Vt.	43 35	EST	+ 3	+ 6	+ 8	+ 9	+12
St. Johnsbury	Vt.	44 25	EST	− 4	+ 1	+ 4	+ 6	+12

NORTHERN NEW ENGLAND SKIING FORECAST

For the skiing public, snowfall in the New England ski resorts located north of Concord, N.H. is forecasted as follows:

WINTER, Nov. 1970 — April 1971. In general, the winter months in northern New England will average 2.0° lower than normal temperatures except January which will be slightly warmer than normal. Total snowfall should be in the range of 100-110″ spread evenly over the months of Jan., Feb. & March. A rainstorm before Christmas will be salvaged by snow on Christmas Day and more right after New Year's. The forecast is for snowfall only and is based on the Burlington, Vt. U.S.W. Bureau Station.

Nov. 1970: 10–13, 2.5″ precip., first snow in the mountains; 21, 3″ snow; 28–30, 6″ snow.

Dec. 1970: 5–7, 6–8″ snow; 11–15, 6″ snow; 19–22, rain; 25–26, 5″ snow.

Jan. 1971: 1–4, 4″ snow; 11–14, 5–8″ snow; 18, 3″ snow; 20–22, thaw; 25–26, 8–10″ snow.

Feb. 1971: 8–10, 10″ snow; 15–17, 3–5″ snow; 21–24, major snow storm, 15–20″ snow.

Mar. 1971: 2–3, 8″ snow; 10–15, 6″ wet snow; 20–21, 6″ snow; 26–27, 4″ snow; 31, wet snow or rain, 4″.

Apr. 1971: 10–13, rain; 20–23, rain or 3″ wet snow.

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2. EASTERN STATES (except New England) WEATHER FORECAST

Verification Base: Pittsburgh, Pa. However, this forecast goes for upper New York, northern Pennsylvania, Ohio, northern New Jersey, and overlaps for Washington, D. C., Virginia, Delaware, and West Virginia when the storms are from the west rather than the south.

THE WINTER (NOV. 1970 – APR. 1971) will bring lower than average temperatures (2° below the normal of 39°), but even with 6" extra of precipitation, there will be only 28" of snowfall.

THE YEAR (JAN. – DEC. 1971) indicates average temperatures of 50.4° (4° below normal) and 41" of precipitation (6" higher than normal).

Nov. 1970: Ave. daily temp. of 42° is 1.3° below normal. Precip. of 4.5", incl. 2" snow, is 1.5" below normal. 1–3, stormy, 1" rain. 4–7, clear. 8–9, .2" rain. 10–13, 3" rain. 14–15, fair. 16–17, cloudy. 18–19, drizzle & fog. 20–22, drizzle & fog. 23–24, .2" rain. 25–27, fair. 28–30, .1" precip., 2" snow.

Dec. 1970: Ave. daily temp. of 35° is 1.3° above normal. Precip. of 2.5", incl. 7" snow, is normal. 1, clear. 2–3, .2" rain. 4–6, .5" precip., 2" snow. 7–10, clear. 11–15, storm, 1" precip. 3–5" snow. 16–18, clear. 19–22, warm rain. .2". 23–26, precip. .5" rain. 27–30, clear. 31, .1" precip. 1" snow.

Jan. 1971: Ave. daily temp. of 32.5° is 1.6° higher than normal. Precip. of 4", incl. 6" snow, is 1" above normal. 1, clear & cold. 2–5, .3" rain. 6–10, clear & cold. 11–15, 1" rain & sleet. 16–17, clear. 18–19, .5" rain & snow mixed. 20–21, rain & thaw. 22–24, clear. 25–27, 1.5" precip. 4" snow. 28–29, clear & cold. 30–31, .5" precip. 2" snow.

Feb. 1971: Ave. daily temp. of 29.5° is 2° below normal. Precip. of 3", incl. 10" snow is .5" above normal. 1–3. .1" precip. 1" snow. 4–7, clear & warmer. 8–10, 1" precip. 3" snow. 11–13, cold. 14–17, 1" precip. 2" snow. 18–22, clear. 23–28, 1" precip., 4" snow.

March 1971: Ave. daily temp. of 37.5° is 2.5° below normal. Precip. of 3.3", incl. 4" snow is normal. 1, clearing. 2–4, .5" precip., 4" snow. 5–7, clear & cold. 8, 1" rain. 9–12, clear. 13–15, 1" rain. 16–19, cloudy. 20–22, .5" precip. rain. 23–24, raw. 25–27, .3" rain. 28–31, clear.

April 1971: Ave. daily temp. of 49° is 2° below normal. Precip. of 3.5" is normal. 1–3, clear & cool. 4–6, fair & warm. 7–8, .5" rain. 9, cool. 10–14, stormy, 1.5" rain. 15–18, unsettled. 19–23, .5" rain. 24–27, clear. 28–30, 1" rain.

May 1971: Ave. daily temp. of 60.5° is 1.5° below normal. Precip. of 5" is 2.7" above normal. 1–2, cloudy. 3–7, 2" rain. 8–9, clear. 10–12, 1" rain. 13–16, fair. 17–18, .5" rain. 19–23, warm. 24–26, cool, 1.5" rain. 27–31, warm & fair.

June 1971: Ave. daily temp. of 68.5° is 2° below normal. Precip. of 4" is slightly above normal. 1, fair. 2–3, 1" rain. 4–8, warm. 9–10, 1" rain. 11–15, fair. 16–18, .5" rain. 19–21, warm. 22–25, .4" rain. 26–29, cool. 30, 1" rain.

Jnly 1971: Ave. daily temp. of 72° is 2.7° below normal. Precip. of 4" is normal. 1–3, .5" rain. 4–6, fair & warm. 7–8. .5" rain. 9–10, unsettled. 11–12, thunderstorms, 2" rain. 13–15, showers, .1" rain. 16–21, fair. 22–23, cool. 24–25, .5" rain. 26–28, fair. 29–31, .5" rain.

Aug. 1971: Ave. daily temp of 69.5° is 3° below normal. Precip. of 2.4" is 1" below normal. 1–6, hot & sultry. 7–10, .5" rain. 11–12, cool. 13–14, showers. 15–17, fair. 18–19, .2" rain. 20–22, cloudy, .2" rain. 23–26, fair. 27–28, heavy rain, 1.5". 29–31, pleasant.

Sept. 1971: Ave. daily temp. of 63.5° is 3° below normal. Precip. of 2.5" is normal. 1–4, clear. 5–8, storm, 1.2" rain. 9–10, clear. 11–12, .5" rain. 13–17, clear. 18–20, cool, .5" rain. 21–22, cool, showers. 23–28, fair. 29–30, .3" rain.

Oct. 1971: Ave. daily temp. of 53.5° is 2° below normal. Precip. of 2.5" is normal. 1–4, fair. 5–7, .5" rain. 8–12, clear & cool. 13–16, unsettled. 17–20, storm, 2" rain. 21–23, cold. 24–27, rainy. 28–31, fair.

Nov. 1971: Ave. daily temp. of 40° is 3.3° below normal. Precip. of 4.5", incl. 1" snow, is 2" above normal. 1, showers. 2–3, fair. 4–6, gale, 1" rain. 7–11, mild. 12–13, .5" rain. 14–15, cool. 16–19, 1" rain. 20–25, clear. 26–30, storm, 2" precip. 1" snow.

Dec. 1971: Ave. daily temp. of 29° is 4.6° below normal. Precip. of 2.6", incl. 8" snow, is normal. 1, clear, 2–5, snowstorm, 1" precip., 2" snow. 6–11, clear & cold. 12–13, .5" rain. 14–15, clear. 16–20, .5" precip., 3" snow. 21–22, cold. 23–26, .5" precip. 3" snow. 27–31, clear & very cold.

WASHINGTON CROSSING THE DELAWARE.

McCONKEY'S FERRY SAVED THE NATION AT TRENTON

by Herb Saltford

If George Washington had not had McConkey's Ferry on which to cross the Delaware and take Trenton, there likely would be no United States of America today! Otherwise, the British troops of Lords Howe and Cornwallis would no doubt have captured the capitol at Philadelphia and won the Revolutionary War.

Cornwallis later told his former adversary, "Fame will gather your brightest laurels from the banks of the Delaware." And Lincoln said of Washington's exploits, "None fixed itself so indelibly as the crossing of the Delaware." On this many historians agree.

William McConkey, the owner of McConkey's Ferry, is buried in a tiny cemetery south of Fultonville, N. Y. A State Historic Sign beside Route 30A marks the site. It reads, "Grave of William McConkey, Jan. 22, 1744 - Sept. 10, 1825, Owner of Ferry on Delaware River on which Washington Crossed Dec. 25, 1776."

Like many others on the river, the Ferry was a Durham Boat, a type which dated from early Colonial times and had a notable history.

Iron ore was discovered in Bucks County (Pa.) in 1727. The Durham Iron Works which established itself there had a very special kind of boat built in 1750 to carry heavy loads of ore and pig iron down the Delaware River to market in Philadelphia. Such boats, from 40 to 60 feet in length with an 8-foot beam, were capable of carrying horses and cannons, as well as men.

A costly defeat in his first engagement of 1776—the Battle of Long Island—had forced General Washington toward the

Continued on page 118

2. EASTERN STATES (EXCEPT NEW ENGLAND)

The times of sunrise, sunset, moonrise, moonset (pages 24–46) and the planets (page 48) are for Boston only. The table below gives the corrections to be used for cities in the Eastern States, except New England. Note the Key Letter for any given day (pages 24–46, 48). Then find the column below in which that Key Letter falls. The figure in that column for the city you seek is the minutes to add or subtract for accuracy of within 5 min. for that city. Example: Jan. 12, sunrise (p. 24) is 7:12 A.M., Key Letter N. Key Letter N for New York City (last col. below) shows +6. So sunrise New York City would be 7:18 A.M. If a city is not listed, interpolate between nearest two cities. (Further explanations appear on pages 90 and 91.)

City	State	Latitude ° ′	Time Used	Key Letters A-D m	E-H m	I m	J-M m	N-Q m
Wilmington	Del.	39 45	EST	+27	+21	+18	+15	+ 9
Washington	D. C.	38 54	EST	+35	+28	+24	+20	+12
Baltimore	Md.	39 17	EST	+32	+26	+22	+19	+12
Hagerstown	Md.	39 40	EST	+36	+30	+27	+24	+17
Salisbury	Md.	38 25	EST	+31	+22	+18	+14	+ 5
Albany	N. Y.	42 39	EST	+10	+10	+11	+11	+12
Binghamton	N. Y.	42 06	EST	+20	+20	+19	+19	+18
Buffalo	N. Y.	43 00	EST	+26	+29	+31	+33	+37
New York	N. Y.	40 45	EST	+17	+13	+12	+10	+ 6
Ogdensburg	N. Y.	44 45	EST	+ 8	+15	+18	+21	+27
Syracuse	N. Y.	43 03	EST	+18	+20	+20	+21	+23
Atlantic City	N. J.	39 22	EST	+24	+17	+13	+10	+ 3
Camden	N. J.	39 57	EST	+24	+19	+16	+13	+ 8
Cape May	N. J.	39 05	EST	+27	+19	+15	+12	+ 4
Newark-Irvington-E. Orange	N. J.	40 44	EST	+18	+14	+12	+11	+ 7
Paterson	N. J.	40 55	EST	+17	+14	+12	+11	+ 7
Trenton	N. J.	40 13	EST	+21	+17	+15	+12	+ 7
Allentown-Bethlehem	Pa.	40 36	EST	+23	+19	+17	+15	+11
Erie	Pa.	42 07	EST	+37	+36	+36	+36	+35
Harrisburg	Pa.	40 16	EST	+30	+26	+23	+21	+16
Lancaster	Pa.	40 02	EST	+29	+24	+21	+18	+13
Philadelphia-Chester	Pa.	39 57	EST	+25	+20	+17	+14	+ 9
Pittsburgh-McKeesport	Pa.	40 26	EST	+42	+38	+35	+33	+28
Reading	Pa.	40 20	EST	+26	+22	+19	+17	+12
Scranton-Wilkes Barre	Pa.	41 25	EST	+23	+20	+19	+18	+15
York	Pa.	39 58	EST	+31	+25	+23	+20	+14
Charlottesville	Va.	38 02	EST	+43	+34	+30	+25	+16
Danville	Va.	36 31	EST	+49	+38	+32	+26	+15
Norfolk	Va.	36 51	EST	+37	+27	+21	+15	+ 5
Richmond	Va.	37 32	EST	+40	+31	+25	+20	+11
Roanoke	Va.	37 16	EST	+51	+41	+35	+30	+20
Winchester	Va.	39 13	EST	+38	+32	+28	+25	+19
Charleston	W. Va.	38 21	EST	+54	+46	+42	+38	+30
Parkersburg	W. Va.	39 21	EST	+52	+45	+42	+38	+32

FULL MOON DAYS

	1971	1972	1973	1974	1975		1971	1972	1973	1974	1975
Jan.	11	30	18	8	27	July	8	26	15	4	23
Feb.	10	28	17	6	25	Aug.	6	24	13	2	21
Mar.	11	29	18	8	27	Sept.	4	22	12	1	20
Apr.	10	28	17	6	25	Oct.	4	22	11	1–30	20
May	10	27	16	6	25	Nov.	2	20	10	29	18
June	8	26	15	4	23	Dec.	2–31	20	9	28	18

NODES OF THE MOON

On the right hand calendar pages 25-47, you will note (3 or 4 times a month) the symbols ☋ at ♉ or ☋ at ♌. The former means the moon is in its descending node, the latter — its ascending node. Many farmers plant, for more rapid growth, during the former—and during the latter, when things don't grow as well, cut brush, prune, etc.

MOON "RUNS HIGH"

On the right hand calendar pages, 25-47, you will find (twice a month) the symbols ☾ runs high or ☾ runs low. The former means the moon is high above the horizon—the latter, low on the horizon. Abraham Lincoln used the latter in the OFA of 1857 to prove the innocence of his client, Armstrong.

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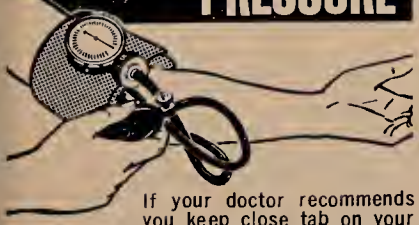

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3. MIDWEST WEATHER FORECAST

Verification Base: Chicago (O'Hare Airport). However, this is to serve for Minnesota, Wisconsin, and Michigan (remembering these states are slightly colder) and Indiana, Iowa (slightly warmer).

THE WINTER (NOV. 1970 – APR. 1971). Ave. temperature of 30.6° will be 2° below normal. Snowfall of 43.5" will be 6" above normal.

THE YEAR (JAN. – DEC. 1971) will be colder by 2.1°, averaging 47.7°, and precipitation of 37" will be 4" above normal.

Nov. 1970: Ave. daily temp. of 41° is .6° above normal. Precip. at 1" is 1.3" below normal. 1–2, .1" rain. 3–9, mild. 10–13, storm, .1" rain. 14–19, warm. 20–22, .5" rain or snow. 23–26, unsettled, rainy, .2" precip. 27–30, clear & cold.

Dec. 1970: Ave. daily temp. of 32° is 2.7° above the normal 29.3°. Precip. of 4", incl. 8.5" snow, is 2" above normal. 1–3, .4" precip., 2.5" snow. 4–8, mild. 9–11, .2" precip. 2.5" snow. 12–15, clear, cold. 16–19, sleet, freezing rain, 2" precip., .5" snow. 20–23, cold. 24–28, cloudy & raw. 29–31, storm, 1.5" precip., 3" snow.

Jan. 1971: Ave. daily temp. of 22° is 2.7° below normal. Precip. of 3.8", incl. 18" snow, is 2" above normal. 1–2, clear, cold. 3–5, .8" precip. 3" snow. 6–7, clear. 8–9, .1" precip. sleet. 10–13, 1" precip., 4" snow. 14–16, clear & cold. 17, .1" precip. 1" snow. 18–19, raw. 20–23, Blizzard, 1.5" precip. 6–8" snow. 24–28, snow flurries. 29–30, clear. 31, snow begins, .2" precip., 2" snow.

Feb. 1971: Ave. daily temp. of 25° is 2° below normal. Precip. of 1.4", incl. 10" snow, is .4" below normal. 1–3, .8" precip. 4" snow. 4–6, cloudy. 7–10, snow flurries, .1" precip. 11–12, clear. 13–15, .1" precip., 1" snow. 16–22, cold. raw. 23–27, .3" precip., 5" snow. 28, cold.

March 1971: Ave. daily temp. of 33° is 3.3° below normal. Precip. of 2.1", incl. 7" snow,is .5" below normal. 1–3, .2" precip. 3" snow. 4–6, raw. 7–8, .2" precip. 2" snow. 9–14, warm, thaw. 15–17, .2" precip. 2" snow. 18–26, warming. 27–31, storm, 1.5" rain.

April 1971: Ave. daily temp. of 42° is 5.5° below normal. Precip. at 4.8" is 1.8" above normal. 1–2, showers, .1" precip. 3–5, .5" rain. 6–7, cloudy. 8–11, 1" rain. 12–15, unsettled. 16–19, storm, 2.5" rain. 20–24, milder. 25–27, .5" rain. 28–30, .1" showers.

May 1971: Ave. daily temp. of 60° is 2° above normal. Precip. at 3.1" is .4" below normal. 1, fair. 2–4, 2.2" rain. 5–10, suuny & warm. 11–12, showers, .2" precip. 13–14, pleasant. 15–17, .2" rain. 18–27, warm spring sunshine. 28–31, storm, .5" rain.

June 1971: Ave. daily temp. of is 1.4° below normal. Precip. of 2.4" above normal. 1–7, warm & pleasant. 8–9, stormy, 1.5" rain. 10–15, best wedding dates. 16–18, .7" rain. 19–21, warm, muggy. 22–24, rainstorm, 1.4". 25–28, more rain, 2.2". 29–30, warm, mild. 31, showers, .1" precip.

July 1971: Ave. daily temp. of 73° is .7° below normal. Precip. at 5.5" is 2" above normal. 1–3, 1" rain. 4–11, fair & pleasant. 12–14, .6" rain. 15–19, hot spell. 20–21, thundershowers, .5" rain. 22–24, fair, cooler. 25–26, heavy winds, 3" rain. 27–29, continued rainy, .4". 30–31, clear & cooler.

Aug. 1971: Ave. daily temp. of 71° 68° is normal. Precip. at 6" is 1.8" is 1.4" below normal. 1–6, hot, scorching. 7–9, 1.1" rain. 10–16, cooler. 17–19, showers, .4". 21–25, warmer. 26–27, .3" rain. 28–31, cool, pleasant.

Sept. 1971: Ave. daily temp. of 65° is .6° below normal. Precip. of 3.1" is normal. 1–3, warm, fair. 4–8, rainy, 1.1". 9–17, clear. 18–20, rainstorm, .5". 21–24, warming. 25–29, storm, 1.5" rain. 30, clear, cool.

Oct. 1971: Ave. daily temp. of 53° is 1.4° below normal. Precip. of 2.2" is normal. 1, showers, .1". 2–8, cool, then warmer. 9–12, .3" rain. 13–14, cool. 15–16, 1.6" rain. 17–18, unsettled. 19–21, showery, .1". 22–30, beautiful. 31, showers, .1".

Nov. 1971: Ave. daily temp. of 35° is 5.4° below normal. Precip. of 1.5", incl. 2" snow, is .8" below normal. 1–3, clear. 4–6, .3" rain. 7–10, Indian Summer. 11–12, showers. 13, cloudy. 14–15, raw, .4" rain. 16–22, bitter. 23–24, .3" rain. 25–26, clear, cold. 27–29, storm, .5" precip. 2" snow. 30, stormy.

Dec. 1971: Ave. daily temp. of 25° is 4.3° below normal. Precip. of 2.5", incl. 19" snow, is .5" above normal. 1–5, snowstorm, 1" precip., 6" snow. 6–14, warmer. 15–18, 1.1" precip. 6–8" snow. 19–21, clear & very cold. 22–24, .2" precip., 2" snow. 25–26, clear, extremely cold. 27–29, .2" precip. 3" snow. 30–31, snow flurries.

THE FATHER OF ARBOR DAY

by Phyllis H. Redford

In most of the United States, a day is set aside in late April or early May for the purpose of planting trees. This special time, which is known as Arbor Day, has been observed annually since 1883, and Birdsey Grant Northrop, a farmer's son of Kent, Connecticut, is generally credited as the originator of Arbor Day.

Birdsey Northrop was born on July 18, 1817, the son of Thomas Grant and Aurelia Curtiss Northrop, and spent his first years in a rural setting. Though the young man was to enjoy a lasting interest in agriculture, he also desired a liberal education. He was graduated from Yale with the Class of 1841, and from the Yale Theological School in 1845.

Dr. Northrop had an outstanding career as clergyman and educator. He served the Congregational Church at Saxonville, Massachusetts, until 1856, resigning to enter the educational field as an agent for the State Board of Education. This post he held until 1867 when he became Secretary of the Connecticut Board of Education. As an educator, he advocated a free school system and compulsory attendance for all young people. Dr. Northrop was an original trustee of Smith College, and a trustee also of Hampton Institute. He was one of the first champions of Negro education.

Dr. Northrop's interest in agriculture, and in trees particularly, stemmed from his childhood on the family farm at the edge of the village. About 1876, he became actively engaged in a project for improving and beautifying the typical New England village. This idea grew into the Village Improvement Societies, and spread its chapters into many states.

In connection with the beautification project, Dr. Northrop conceived the idea of an annual tree planting. His paper on that subject was widely circulated throughout America.

In 1883, The American Forestry Association adopted a resolution in favor of an annual Arbor Day in the schools of the nation. Dr. Northrop was appointed to publicize the movement. Soon, Arbor Day was being observed, not only in America but in Canada, Australia, Hawaii, Japan, and in several European countries.

A contemporary of Dr. Northrop wrote in 1891:

> ". . . in his youth he manifested a fondness for trees and tree planting, till he became their foremost advocate . . . the nation is especially indebted to Dr. Northrop for what is known as 'Arbor Day in Schools,' an idea suggested by him eight years ago, and since then so efficiently urged and supported by him, that 38 states have adopted the day. The number of trees planted by school children under the stimulus of Arbor Day, in observance in these different states, within the period included, already reaches into the millions."

Dr. Northrop's writings include *Village Improvement*, 1878, and *Arbor Day in Schools*, 1892.

He died at Clinton, Connecticut, on April 27, 1898.

E. B. Peck, writing in *The New England Magazine* of May, 1900, gives a complete biography of Dr. Northrop as "The Founder of Arbor Day."

Presently, Arbor Day is observed in every state except Alaska (often the last Friday in April). Florida observes the third Friday in January; Nebraska, April 22; and Wyoming as proclaimed by the Governor. International Arbor Day is December 22.

3. MIDWESTERN STATES

The times of sunrise, sunset, moonrise, moonset (pages 24–46) and the planets (page 48) are for Boston only. The table below gives the corrections to be used for cities in the Midwest. Note the Key Letter for any given day (pages 24–46, 48). Then find the column below in which that Key Letter falls. The figure in that column for the city you seek is the minutes to add or subtract for accuracy of within 5 min. for that city. Example: Jan. 12, sunrise (p. 24) is 7:12 A.M., Key Letter N. Key Letter N for Chicago (last col. below) shows +4. So sunrise at Chicago will be 7:16 A.M., CST. If a city is not listed, interpolate between nearest two cities. (Further explanations appear on pages 90 and 91).

City	State	Latitude, ° ′	Time Used	Key Letters A-D m	E-H m	I m	J-M m	N-Q m
Cairo	Ill.	37 05	CST	+30	+18	+12	+ 7	− 5
Chicago-Oak Park	Ill.	41 52	CST	+ 7	+ 6	+ 5	+ 5	+ 4
Danville	Ill.	40 07	CST	+13	+ 8	+ 5	+ 3	− 2
Decatur	Ill.	39 51	CST	+20	+14	+12	+ 9	+ 3
E. St. Louis	Ill.	38 38	CST	+29	+21	+17	+12	+ 4
Peoria	Ill.	40 42	CST	+20	+16	+14	+12	+ 7
Rockford	Ill.	42 17	CST	+12	+12	+12	+12	+12
Springfield	Ill.	39 48	CST	+23	+17	+14	+12	+ 6
Fort Wayne	Ind.	41 04	EST	+61	+58	+56	+55	+52
Gary	Ind.	41 36	CST	+ 7	+ 6	+ 5	+ 4	+ 2
Indianapolis	Ind.	39 46	EST	+69	+63	+60	+57	+52
Muncie	Ind.	40 11	EST	+65	+60	+57	+55	+50
South Bend	Ind.	41 41	CST	+ 3	+ 2	+ 1	0	− 2
Terre Haute	Ind.	39 28	CST	+15	+ 8	+ 5	+ 2	− 5
Council Bluffs	Iowa	41 16	CST	+43	+40	+39	+38	+35
Davenport	Iowa	41 31	CST	+21	+19	+18	+17	+15
Des Moines	Iowa	41 35	CST	+33	+31	+30	+29	+27
Dubuque	Iowa	42 30	CST	+18	+18	+18	+19	+19
Sioux City	Iowa	42 30	CST	+41	+41	+41	+41	+42
Waterloo	Iowa	42 29	CST	+25	+25	+25	+25	+26
Fort Scott	Kans.	37 55	CST	+49	+39	+34	+30	+20
Liberal	Kans.	37 03	CST	+77	+65	+60	+54	+42
Oakley	Kans.	39 07	MST	+10	+ 3	− 1	− 4	−12
Salina	Kans.	38 53	CST	+58	+50	+46	+42	+34
Topeka	Kans.	39 03	CST	+49	+42	+38	+35	+27
Wichita	Kans.	37 42	CST	+60	+50	+45	+40	+30
Cheboygan	Mich.	45 40	EST	+41	+50	+54	+57	+66
Detroit-Dearborn	Mich.	42 20	EST	+48	+48	+48	+48	+48
Flint	Mich.	43 01	EST	+48	+50	+51	+51	+53
Grand Rapids	Mich.	42 58	EST	+56	+58	+58	+59	+61
Ironwood	Mich.	46 40	CST	0	+11	+16	+21	+32
Jackson	Mich.	42 15	EST	+54	+53	+53	+53	+53
Kalamazoo	Mich.	42 17	EST	+58	+58	+58	+58	+58
Lansing	Mich.	42 44	EST	+53	+54	+54	+54	+55
Pontiac	Mich.	42 40	EST	+48	+49	+49	+49	+50
Traverse City	Mich.	44 50	EST	+49	+55	+58	+61	+67
Albert Lea	Minn.	43 40	CST	+25	+28	+29	+31	+34
Bemidji	Minn.	47 30	CST	+15	+29	+35	+42	+56
Duluth	Minn.	46 47	CST	+ 7	+19	+24	+30	+42
Minneapolis-St. Paul	Minn.	44 57	CST	+19	+26	+29	+32	+39
Ortonville	Minn.	45 20	CST	+30	+38	+41	+45	+53
Jefferson City	Mo.	38 32	CST	+37	+29	+25	+20	+12
Joplin	Mo.	37 04	CST	+51	+39	+34	+28	+17
Kansas City	Mo.	39 05	CST	+45	+38	+34	+30	+23
Poplar Bluff	Mo.	36 40	CST	+35	+23	+17	+11	− 1
St. Joseph	Mo.	39 46	CST	+44	+38	+35	+32	+26
St. Louis	Mo.	38 38	CST	+29	+21	+17	+12	+ 4
Springfield	Mo.	37 13	CST	+46	+34	+29	+23	+12
Chadron	Neb.	42 50	CST	+66	+67	+68	+68	+70
Grand Island	Neb.	40 52	CST	+54	+51	+49	+48	+44
Lincoln	Neb.	40 49	CST	+48	+44	+43	+41	+37
Norfolk	Neb.	42 01	CST	+47	+46	+45	+45	+44
North Platte	Neb.	41 10	CST	+63	+60	+59	+57	+55
Omaha	Neb.	41 16	CST	+43	+41	+40	+38	+36
Sidney	Neb.	41 08	CST	+72	+69	+67	+66	+63
Bismarck	N. D.	46 48	CST	+42	+53	+59	+64	+77
Fargo	N. D.	46 52	CST	+25	+37	+43	+49	+61
Grand Forks	N. D.	47 56	CST	+22	+37	+44	+51	+67
Minot	N. D.	48 15	CST	+37	+54	+61	+68	+85
Williston	N. D.	48 10	CST	+47	+63	+70	+78	+94
Akron	Ohio	41 05	EST	+46	+43	+42	+40	+37
Canton	Ohio	40 48	EST	+47	+43	+41	+39	+36
Cincinnati-Hamilton	Ohio	39 06	EST	+64	+57	+54	+50	+43
Cleveland-Lakewood	Ohio	41 30	EST	+46	+43	+42	+42	+40
Columbus	Ohio	39 58	EST	+56	+50	+48	+45	+40
Dayton-Springfield	Ohio	39 46	EST	+58	+55	+52	+49	+43
Lima	Ohio	40 45	EST	+58	+54	+52	+50	+47
Toledo	Ohio	41 39	EST	+52	+51	+50	+49	+47
Youngstown	Ohio	41 06	EST	+43	+40	+38	+37	+34
Aberdeen	S. D.	45 30	CST	+38	+46	+50	+54	+62

Continued on page 104

Cucumbers and Beauty

by ANA MAHER

Every woman, at some time in her life, faces the spectre of an aging skin. Most women never solve the problem, and finally become resigned. A fortunate few find the answer and are rewarded with a complexion that remains fresh and youthful all their lives.

Eight years ago, I had this skin problem. Nothing very serious, but when I took my mirror over to a bright light, I could detect evidence of dryness and faint little lines in those areas where wrinkles have a tendency to show first. And I didn't like it. I knew that these were danger signals that warned of an aging skin.

I was also very bewildered. I had always taken the best care of my skin. I used expensive night creams, lotions and highly touted astringents. So I tried other creams, with no improvement. Finally I became resigned. After all, everybody gets older and most of us show our age.

Then one day I had a visit from an elderly widowed neighbor. This charming lady was about seventy, but she had the most beautiful, moist, youthful skin. I remarked about it and mentioned my own skin problem.

She told me she used a marvelous cream which had been formulated by her late husband, a physician, and that she made it herself. "Try it," she said, and then she left and returned with a jar of this cream.

So I tried using my neighbor's cream.

In only three weeks, I began to see a marked improvement. My skin was fresher, clearer, smoother. After two months, my former dry, dull skin was revitalized. The lines and puffiness had been eased away. My skin now had a youthful, almost translucent quality. I was thrilled with my neighbor's formula.

For six years, this kind lady kept me supplied with this cream. And I want to tell you that my skin was more vital and younger looking than it had been when I first started to use it, six years before.

Then my neighbor died suddenly — and with her went that wonderful cream and its secret ingredients. I was saddened by the loss of a good friend — and dejected by the loss of a miracle cream. Her family told me that her personal papers revealed no formulas of any kind. I was desperate. But I did have three jars left from the last batch she had made.

So I took the cream to one of the best known analytical cosmetic chemists. The cost of the analysis was enormous, but I got what I wanted. I had the wonder cream formula.

It had a base of pure cucumber juice, two super-moisturizers and three natural lubricants. It also contained Vitamins A and D and a special component to keep the cucumber juice fresh. My chemist told me that the formula consisted of only safe, pure ingredients — no hormones, estrogens or steroids.

I made a batch of cream for myself, following the chemist's instructions. Then my friends and relatives began using it. And in every case, the results were absolutely astounding.

Soon friends began insisting that the cream should be made known and available to all women, since the problem of aging skin is universal.

So my cream was put on the market a year ago, with the financial help of an uncle. It is called Cucumbre Frost.

The same wonderful results experienced by me, my friends and relatives were repeated time and time again by women all over the country. I have in my file hundreds of letters from grateful women telling of the remarkable results obtained with Cucumbre Frost.

Treatment is not a complicated ritual. I don't have time for that and the chances are you don't, either. You apply Cucumbre Frost at bedtime. Leave it on all night. It feeds, protects, and nourishes your skin while you sleep.

I know what Cucumbre Frost can do for you. Therefore, I offer you this UNCONDITIONAL GUARANTEE. Try it. See for yourself in your own mirror how, after a few treatments, Cucumbre Frost helps revitalize dull, dry, aging skin. How Cucumbre Frost helps ease away lines and puffiness. Many women wrote me of astonishing results after only two weeks. Some take longer. But I say this to you: If, for any reason, you are not delighted with Cucumbre Frost — return the unused portion to me for a complete refund. No questions asked.

You now have the opportunity to have a vital, youthful, lovely skin — at no risk. Cucumbre Frost can be purchased only by ordering it directly from me. Simply send your name, address and $5.00 (cash, check or money order) to:

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MIDWESTERN STATES (Continued)

City	State	Latitude ° ′	Time Used	Key Letters A-D m	E-H m	I m	J-M m	N-Q m
Murdo	S. D.	43 53	CST	+53	+57	+59	+60	+65
Pierre	S. D.	44 21	CST	+50	+55	+57	+59	+65
Rapid City	S. D.	44 05	CST	+62	+67	+69	+71	+75
Sioux Falls	S. D.	43 33	CST	+38	+41	+43	+44	+47
Eau Claire	Wis.	44 51	CST	+13	+19	+22	+25	+31
Green Bay	Wis.	44 30	CST	0	+ 5	+ 8	+10	+16
LaCrosse	Wis.	43 40	CST	−15	−19	+21	+22	+26
Madison	Wis.	43 04	CST	+11	+12	+13	+14	+16
Milwaukee	Wis.	43 02	CST	+ 5	+ 7	+ 7	+ 8	+10
Oshkosh	Wis.	44 01	CST	+ 2	+ 6	+ 8	+10	+15
Wausau	Wis.	44 56	CST	+ 5	+12	+15	+18	+25
Montreal	Que.	45 30	EST	− 4	+ 5	+10	+15	+23
Quebec	Que.	46 45	EST	−19	− 6	+ 1	+ 8	+20
Toronto	Ont.	43 45	EST	+29	+31	+33	+36	+38

WINNING ESSAYS OF THE 1970 ESSAY CONTEST

"How Do You Make A Garden Grow?"

1st PRIZE

You follow eight simple do's and don't's. Do start your garden preparations in late October using plenty of fertilizer, mulch when turning the soil. Do the same in early March. Do keep the areas around your garden clean and mowed. Do follow all directions for planting and thinning. Don't **skimp** on fertilizer and water. Don't try to grow things you haven't had much luck with before. Don't try to rush the weather. You can't. Don't be afraid to ask advice from other successful gardeners.

Mr. Russell E. Shaw, Tewksbury, Mass.

2nd PRIZE

No one can **"make"** gardens grow. I encourage mine, like friendships.

Spring means turning the soil gently—no sharp digs, and removing weeds which, like misunderstandings, are best eliminated while small.

Visitors should walk gently around the garden, lest they disturb its work.

Flowers grown in and around the garden provide brightness when vegetables cease blooming. (All things do better when they look pretty.)

Praising its productivity aloud to the neighbors boosts a garden's ego.

Gratefully replacing nutrients used to provide your bounty, and allowing it a good winter's rest, is its reward.

Don't "Make" it grow—befriend it!

Mrs. James J. Gilligan, Geneva, Illinois.

3rd PRIZE

Togetherness and TLC (tender loving care) are the keys to success in growing succulent fruits and vegetables, not to mention the eye-catching beauty of flowers blooming all through the summer.

During the long New England winter my husband and I plan our garden and order the seed. Come mid-April, we commence our planting, assembly-line style: he draws the rows, I plant the seed, he covers the seed, I pat the earth firm, he cultivates, I weed, he waters, I weed, we harvest.

We have never failed in proving the perfect harmony that exists between God and Man!

Mrs. Elizabeth Brownell, Pittsfield, Mass.

1971 ESSAY CONTEST

For 1971, the money will go (1st, $25.00—2nd, $15.00—3rd, $5.00) for the best 100-word essay on "How Can One Best Utilize Herbicides".

No entries returned; all become property of Yankee, Inc., which reserves all rights in the material submitted. In case of tie, place money lumped and divided. Staff of YANKEE, final judge. Winners announced 1972 OFA.

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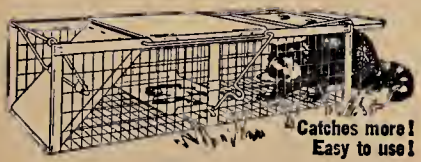

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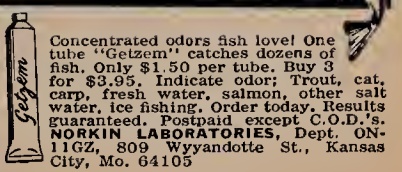

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4. THE GREAT PLAINS WEATHER FORECAST

Verification Base: Denver, Colorado. However, this forecast is meant to indicate something about the weather for the Dakotas, Kansas, Nebraska, Western Missouri, as well as Montana and Wyoming. The northern tier of states which are affected by Canadian air masses will be colder and wilder but the storm dates should remain constant.

THE WINTER (NOV. 1970 – APR. 1971) will have temperatures of 1° above the normal of 33°. Precipitation will be 1.1" below normal—i.e. 6.8" vs. 7.9" and Includes snowfall of 42" (vs. 60"). Watch out for 7" of snow in early May, however.

THE YEAR (JAN. – DEC. 1971) will have normal average temperatures (50.8°) but slightly less precipitation than the normal 14.4".

Nov. 1970: Ave. daily temp. of 41° is 1° above normal. Precip. of .7", inel. 6" of snow, will be normal. 1–3, .1" precip., 1" snow. 4–6, .3" precip. 2" snow. 7–17, clear. 18–21, .3" precip. 2–4" snow. 22–30, clear & warm.

Dec. 1970: Ave. daily temp. of 31° is 1.4° below normal. Precip. of .3", incl. 6" snow, is .3" below normal. 1–12, clear & pleasant. 13–17, colder, cloudy. 18–20, .2" precip. 5" snow. 21–27, clear & cold. 28–31, .1" precip. 1" snow.

Jan. 1971: Ave. daily temp. of 30° is normal. Precip. of .2", incl. 2" snow, is .3" below normal. 1–7, clear, warm. 8–9, .1" precip. 1" snow. 10–12, extreme cold. 13–16, fair & warmer. 17–19, .1" precip. 1" snow. 20–21, clear. 22–23, flurries. 24–31, fair.

Feb. 1971: Ave. daily temp. of 35° is 2.3° above normal. Precip. of .5", incl. 9" snow, is .1" below normal. 1–2, storm, 6" snow. 3–4, cloudy. 5–8, .2" precip. 2" snow. 9–18, clear & warm. 19–20, .1" precip. 1" snow. 21–28, warmer.

Mar. 1971: Ave. daily temp. of 39° is normal. Precip. of .6", incl. 10" snow, is .5" below normal. 1, snow flurries. 2–5, warm. 6–7, .1" precip. 2" snow. 8–17, fair but colder. 18–20, .3" precip. 5" snow. 21–25, warmer. 26–27, .2" precip. 3" snow. 28–31, warming.

April 1971: Ave. daily temp. of 48° is .5° above normal. Precip. of 2.5", incl. 2" snow, is .5" above normal. 1–2, clear. 3–4, showers. 5–11, good weather, cool. 12–13, .1" precip. 2" snow. 14–18, warm & clear. 19, showers. 20–21, fair. 22–24, rainstorm, 2.4" rain. 25–27, showers. 28–30, mild.

May 1971: Ave. daily temp. of 54° is 2.7° below normal. Precip. of 2", Incl. 7" snow, is .4" below normal. 1–4, clear. 5–8, SURPRISE SNOWSTORM. 5". 9–11, clear. 12–16, 2–3" SNOW & RAIN MIXED. 17–21, warmer. 22–24, sprinkles. 25–26, .3" rain. 27–31, warm & fair.

June 1971: Ave. daily temp. of 67° is normal. Precip. of 3" is 1.5" above normal. 1–3, 1.1" rain. 4–5, unsettled, showers. 6–9, warm, showers. 10–11, .2" rain. 12–22, 70°–80° temps. 23–28, Storm, 2" rain. 29–30, warmer.

July 1971: Ave. daily temp. of 73° is normal. Precip. of 1.3" is .4" below normal. 1–3, clear, warm. 4–6, showers, .2" rain. 7–8, cloudy. 9–11, .2" rain. 12–14, unsettled. 15–16, rainstorm, .5". 17–22, fair and hot. 23–25, .2" rain. 26–28, clear, high 70's. 29–31, .2" rain.

Aug. 1971: Ave. daily temp. of 73° is 1.1° above normal. Precip. of 1" is .4" below normal. 1–2, sprinkles. 3–5, warm. 6–8, .3" rain. 9–13, beautiful. 14–15, .1" showers. 16–17, fair. 18–20, stormy, rain .6". 21–31, seasonable.

Sept. 1971: Ave. daily temp. of 61° Is 1.8° below normal. Precip. of 1.5" is .5" above normal. 1–3, cool. 4–5, .1" rain. 6–15, seasonable. 16–21, storm, 1" rain. 22–25, clear. 26–28, .4" rain. 29–30, cool.

Oct 1971: Ave. daily temp. of 55° is 3.2° above normal. Precip. of .2" is .8" below normal. 1–7, lovely. 8–10, .1" rain. 11–18, fair. 19–21, .1" rain. 22–31, cloudy, then clear.

Nov. 1971: Ave. daily temp. of 39° is .8° below normal. Precip. of 1", incl. 12" snow, is .4" above normal. 1–10, colder. 11–13, storm, .3" precip. 1" snow. 14–16, raw. 17–18, snowstorm, .5" precip. 10" snow. 19–25, warmer. 26–28, rain & snow. .2" precip. 1" snow. 29–30, clear.

Dec. 1971: Ave. daily temp. of 36° is 3.6° above normal. Precip. of .3", incl. 7" snow, is .3" below normal. 1–3, .1" precip. 1" snow. 4–12, much colder. 13–15, .2" preclp. 6" snow. 16–31, seasonable, 40° temps.

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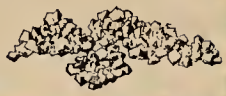

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4.-5. WESTERN AND MOUNTAIN STATES

The times of sunrise, sunset, moonrise, moonset (pages 24–46) and the planets (page 48) are for Boston only. The table below gives the corrections to be used for both the Northern and Southern States of the Far West. Note the Key Letter for any given day (pages 24–46, 48). Then find the column below in which that Key Letter falls. The figure in that column for the city you seek is the minutes to add or subtract for that city. Example: Jan. 12, sunrise (page 24) is 7:12 A.M. Key Letter N. Key Letter N for San Francisco (last col. below) shows +9. So sunrise at San Francisco will be 7:21 A.M., PST. If a city is not listed, interpolate between nearest two cities. (Further explanations appear on pages 90 and 91).

NORTHERN TIER

The adjusted times found for these cities will be accurate generally to within 5 min.

City	State	Latitude ° ′	Time Used	Key Letters A-D m	E-H m	I m	J-M m	N-Q m
Fresno	Cal.	36 44	PST	+33	+21	+15	+ 9	− 3
Redding	Cal.	40 30	PST	+31	+27	+25	+23	+19
Sacramento	Cal.	38 35	PST	+34	+26	+22	+18	+ 9
San Francisco incl. Oakland & San Jose	Cal.	37 47	PST	+40	+29	+25	+20	+ 9
Stockton	Cal.	37 57	PST	+35	+26	+21	+16	+ 6
Craig	Colo.	40 30	MST	+32	+28	+26	+24	+19
Denver-Boulder	Colo.	39 45	MST	+25	+19	+16	+13	+ 8
Grand Junction	Colo.	39 03	MST	+41	+33	+30	+26	+19
Pueblo	Colo.	38 16	MST	+28	+18	+14	+10	+ 1
Trinidad	Colo.	37 08	MST	+31	+19	+14	+ 8	− 3
Boise	Idaho	43 37	MST	+56	+59	+61	+62	+65
Lewiston	Idaho	46 25	PST	−12	− 1	+ 4	+ 9	+20
Pocatello	Idaho	42 55	MST	+44	+45	+45	+46	+47
Billings	Mont.	45 47	MST	+16	+25	+29	+33	+43
Butte	Mont.	46 01	MST	+32	+41	+46	+50	+60
Glasgow	Mont.	48 10	MST	0	+15	+22	+30	+46
Great Falls	Mont.	47 30	MST	+21	+34	+41	+47	+61
Helena	Mont.	46 36	MST	+27	+39	+44	+49	+61
Miles City	Mont.	46 30	MST	+ 3	+14	+19	+24	+35
Carson City-Reno	Nev.	39 31	PST	+25	+18	+15	+11	+ 5
Elko	Nev.	40 50	PST	+ 4	+ 1	− 1	− 3	− 7
Las Vegas	Nev.	36 10	PST	+16	+ 3	− 4	−10	−24
Eugene	Ore.	44 03	PST	+22	+26	+28	+30	+34
Pendleton	Ore.	45 35	PST	− 2	+ 7	+11	+15	+24
Portland	Ore.	45 31	PST	+14	+23	+26	+30	+39
Kanab	Utah	37 03	MST	+63	+52	+46	+40	+29
Moab	Utah	38 35	MST	+47	+38	+34	+30	+21
Ogden	Utah	41 14	MST	+48	+45	+44	+42	+40
Salt Lake City	Utah	40 45	MST	+49	+45	+43	+41	+38
Vernal	Utah	40 30	MST	+40	+36	+34	+32	+27
Bellingham	Wash.	48 54	PST	+ 4	+19	+26	+32	+48
Seattle-Tacoma-Olympia	Wash.	47 37	PST	+ 6	+20	+26	+32	+46
Spokane	Wash.	47 40	PST	−16	− 1	+ 5	+12	+27
Walla Walla	Wash.	46 04	PST	− 5	+ 5	+ 9	+14	+24
Casper	Wyo.	42 50	MST	+20	+21	+22	+22	+24
Cheyenne	Wyo.	41 08	MST	+17	+14	+13	+11	+ 9
Rawlins	Wyo.	41 45	MST	+27	+25	+25	+24	+23
Rock Springs	Wyo.	41 35	MST	+35	+33	+33	+32	+30
Sheridan	Wyo.	44 50	MST	+14	+20	+23	+26	+33

SOUTHERN TIER

The adjusted times found for these cities will be accurate generally to within 10 mins.

Flagstaff	Ariz.	35 08	MST	+62	+50	+42	+35	+22
Phoenix	Ariz.	33 27	MST	+69	+53	+44	+35	+19
Tucson	Ariz.	32 13	MST	+68	+50	+40	+29	+11
Yuma	Ariz.	32 40	MST	+81	+64	+54	+44	+27
Fort Smith	Ark.	35 25	CST	+54	+41	+33	+26	+13
Bakersfield	Cal.	35 30	PST	+32	+19	+12	+ 4	− 8
Barstow	Cal.	34 55	PST	+25	+12	+ 4	− 4	−18
Los Angeles incl. Pasadena & Santa Monica	Cal.	34 03	PST	+32	+17	+ 9	0	−14
San Diego	Cal.	32 43	PST	+31	+14	+ 4	− 5	−23
Albuquerque	N. M.	35 05	MST	+43	+30	+22	+15	+ 1
Gallup	N. M.	35 30	MST	+50	+38	+31	+24	+11
Las Cruces	N. M.	32 20	MST	+51	+34	+23	+12	− 5
Roswell	N. M.	33 20	MST	+39	+23	+14	+ 5	+11
Santa Fe	N. M.	35 41	MST	+39	+26	+19	+12	0
Ardmore	Okla.	34 05	CST	+67	+53	+44	+36	+21
Oklahoma City	Okla.	35 28	CST	+66	+53	+46	+38	+26
Tulsa	Okla.	36 09	CST	+58	+46	+40	+33	+21

DESALINATION:
WATER SUPPLY OF THE FUTURE

by Henry J. Arcand

(Reprinted courtesy of The New Englander)

Mankind is confronted with problems of water quality, quantity, or both in nearly every part of the world. These problems persist though ground water supplies and annual precipitation far exceed water demands now or in the foreseeable future. The problem is that there is enough water on the earth but not necessarily at the right time or at the right place. There would even be water problems if all the oceans were fresh water, because it would still be necessary to deliver the water inland.

Population increases, improved standards of living and increased industrialization all contribute to the growing per capita water demands. In addition, new communities are developing in oil- or mineral-rich areas that have no fresh water. Unless new sources of fresh water are developed, more communities will be faced with water shortages. In many arid and semi-arid areas of the world, including the southwestern part of the United States, water shortages have already become a limiting factor in community development.

At the current water consumption rate, the margin of supply over demand is shrinking substantially. Government sources say that water use in the United States is increasing at a rate of 25,000 gallons per minute. In 1960, the daily use of water in the United States was estimated at 300 billion gallons. This figure, equivalent to about 2,000 gallons a day per person, included all water used for domestic, industrial, and agricultural purposes. With over 400 billion gallons of water a day now being used in the United States, the current demand is causing increasingly severe water problems in many areas. By 1975, water requirements in this country are expected to be approximately 500 billion gallons a day, an increase of 200 billion over what was required in 1960.

Estimated United States water use by 1980 is in the range of 580 to 600 billion gallons a day. The year 1980 does not represent a peak in the demand for water. The consumption curve is expected to rise as population increases. More water will be needed in 1980 than is presently available from conventional sources. Water use will exceed supply by about 85 billion gallons per day. By the year 2000, just three decades away, we will be consuming one trillion gallons per day in the United States alone.

As conventional sources fail to satisfy our growing water needs, we are forced to turn more and more to unconventional sources for this basic life requirement. Millions more gallons

Continued on page 132

5. PACIFIC NORTHWEST WEATHER FORECAST

Verification Base: Portland, Oregon. However, this forecast should be useful if you reduce the amounts of rain as you go south all down the coast to San Francisco. No attempt is made herewith for Southern California or the desert states as the variations, except around coastal Southern California, are too small to be meaningful.

THE WINTER (NOV. 1970 – APR. 1971) with 1.5° below normal temperatures, will start with slightly above normal temperatures in Nov., become normal in Dec., dip considerably below normal in January and remain below normal in February. Precipitation will be 8" above normal. Snowfall of 34-41" will be considerably above the normal winter snowfall of (15-20) inches.

THE YEAR (JAN. 1971 – DEC. 1971) brings slightly higher (.7°) temperatures than the norm of 52.3°. Precipitation will be 44.8", 7" higher than the normal 37.5". Snowfall will be the highest since 1968 with 35-41" of snow expected, almost 30" of which should come in January alone.

Nov. 1970: Ave. daily temp. of 49° is 3.4° above normal. Precip. of 5.5" is .1" below normal. 1–2, partly cloudy. 3–7, rain, 1.5" precip. 8–10, cloudy. 11–14, thick fog. 15–20, rain, 2.5" precip. 21–22, partly cloudy. 23–24, drizzle, .5" precip., 25–28, cloudy. 29–30, rain, 1" precip.

Dec. 1970: Ave. daily temp. of 41° is normal. Precip. of 8.1", incl. .7" snow is 2" above normal. 1–4, continued rain, 2.5" precip. 5–8, drizzle, .8" precip. 9–13, rain changing to snow, .5" preeip., .2" snow. 14–15, partly cloudy. 16–17, rain, .3" precip. 18–19, partly cloudy, -clear. 20–22, rain, 1" precip. 23–26, mixed rain & snow, 1.5" precip., .5" snow. 27-28, clearing, cold. 29–31, rain, 1.5" precip.

Jan. 1971: Ave. daily temp. of 31° is 7.2° below normal. Precip. of 9", incl. 26–30" snow, is 3.3" above normal. 1–3, rain & sleet, .6" precip., 4–5, cloudy. 6–8, snow storm, .9" precip. 2.5" snow. 9–12, clear & cold. 13–20, snowstorms, 4" precip. 12–14" snow. 21–24, partly cloudy & cold. 25–31, Blizzard, 3.5" precip. 12–14" snow.

Feb. 1971: Ave. daily temp. of 40° is 2.9° below normal. Precip. of 5.3", incl. 6–9" snow, is 1.3" above normal. 1, raw, 2–3, snowstorm, .8" precip., 2–4" snow, 4, clear & cold. 5–8, snowstorm, .4" precip. 2" snow. 9–10, very cold. 11–15, snow flurries, .6" precip. 2–3" snow. 16–19, rain storm, 1.5" precip. 20–24, rain, 1.8" precip. 25–28, cloudy, drizzle, .2" precip.

Mar. 1971: Ave. daily temp. of 47° is 1.2° above normal. Precip. at 5.1", incl. 1" snow, is 1.4" above normal. 1, cloudy. 2–4, rainstorm, 2" precip. 5–7, light rain, .5" precip. 8–9, partly cloudy. 10–13, rain & drizzle, .8" precip. 14–15, cloudy. 16–19, rain mixed with snow, .5" precip., 1" snow. 20–22, cloudy. 23–26, storm, 1" precip. 27–31, drizzle, .3" precip.

Apr. 1971: Ave. daily temp. of 51° is normal. Precip. of 2.4" is .2" above normal. 1–5, some heavy rain, .4" precip. 6–7, partly cloudy. 8–10, rain & drizzle, .3" precip. 11–12, cloudy, 13–15, rainstorm, .7" precip. 16–18, partly cloudy. 19–23, rainstorm changing to drizzle, .7" precip. 24–27, unsettled. 28–30, light rain, .3" precip.

May 1971: Ave. daily temp. of 57° is normal. Precip. at 1" is 1.1" below normal. 1-3, clearing. 4–6, rain, .3" precip. 7–10, partly cloudy. 10–14, rain becoming drizzle, .6" precip. 15–17, partly cloudy. 19–21, clear & warm. 22–24, cloudy. 25–27, drizzle, .1" precip. 28–31, clear & pleasant.

June 1971: Ave. daily temp. of 63° is 3.4° above normal. Precip. of 2.3" is .7" above normal. 1–5, clear & humid. 6–8, rain, 1" precip. 9–12, beautiful spring weather. 13–16, drizzle becoming heavy rain, .4" precip. 17–18, heavy rain, 1" precip. 19–20, cloudy & warm. 21–24, rain & drizzle. 5" precip. 25–27, cloudy. 28–30, rain, .3" precip.

July 1971: Ave. daily temp. of 68° is 1.4° above normal. Precip. of .7" is .2" above normal. 1–4, rain & drizzle, .5" precip. 5–15, clear, warm. 16–17, rain, .2" precip. 18–23, partly cloudy. 24–26, clear. 27–28, cloudy, drizzle, trace of precip. 29–31, clear, hot.

Aug. 1971: Ave. daily temp. of 70° is 5.4° above normal. Precip. of .4" is .4" below normal. 1–3, clear, warm. 4–6, showers, .1" precip. 7–11, clear, temp. in 90's. 12–14, light rain, trace precip. 15–20, cloudy, then clear & hot. 21–23, drizzle, .03" precip. 24–28, very hot. 29–31, rainstorm. .4" precip.

Continued on page 135

A DORY RIDE THROUGH THE KLONDIKE

by C. M. Waite

It was February of 1898 when a trio of young men from Scituate, Massachusetts hauled their 5000 pounds of equipment and supplies up through the treacherous Chilkoot Pass, gateway to the Yukon and the Gold Rush. James and Charles Turner, brothers, had met up with a neighbor, Steve Hammond and had planned to move on, but besides being tired, the Turner boys remembered a promise to their mother to observe the Sabbath as a day of rest whenever possible. Their decision to wait another day probably saved their lives, for on that Sunday the thawing snow on the mountainside unloosed an avalanche that roared down across the staging area at its foot like an obliterating tidal wave.

"Men were buried under forty or fifty feet of snow," said Jamie. "Some bodies were not recovered until spring. We gathered as many of the dead as we could and held a memorial service. Hundreds of men, all kinds of men, joined in the singing and prayers. Never before nor since have I witnessed such a deeply moving service."

Fortunately their supplies were not too deeply buried. They dug them out and eventually made their way over the pass to an upper tributary of the Yukon River. The next long step was down-river to Dawson, hundreds of miles to the North.

Along the shore rafts and boats of all sorts were being hastily constructed, many so flimsy that they hardly survived launching. But in the field of boat-building and handling, the boys from Scituate were fully at home. Furthermore, they had the foresight to bring along good tools. Searching out suitable trees, they felled them, rolled the logs over a pit and, one man below and one above, whipsawed the planks and boards they needed. In time three sturdy dories were completed, each capable of carrying one man, three dogs and their cargo.

The most dreaded down-river hurdle was White Horse River through Miles Canyon, a seething, rock-filled torrent so dangerous that all craft were halted above it for inspection by the Northwest Mounted Police. Now, the Mounties knew all about inland water boats but Atlantic dories were as strange to them as Roman galleys. How could such awkward-looking boats stay afloat in raging rapids that were capsizing and smashing much larger ones? The Mounties said in effect, "Thou shalt not pass." This meant a back-breaking, time-consuming portage of several miles. The youths set out dejectedly to survey the route.

Continued on page 136

6. SOUTHERN STATES WEATHER FORECAST

Verification Base: Atlanta, Georgia. However, this forecast should quite generally cover the Southern States, except possibly Florida and Northern Texas which have special climates all their own.

THE WINTER (NOV. 1970 – APR. 1971) Winter temperatures will average 1.5° below normal, with January being the only warmer month. Precipitation of 21.9″ is 4.8″ lower than normal for the six months with 6″ of snow all expected in February.

THE YEAR (JAN.–DEC. 1971) will have temperatures averaging 1.5° lower than normal. Rainfall is 1.1″ above the normal of 48″.

Nov. 1970: Ave. daily temp. of 50° is 2° below normal. Precip. of 1.1″ is 2″ below normal. 1–3, storm, .5″ rain. 4–10, clear. 11–13, .2″ rain. 14–21, clear. 22–24, .4″ rain. 25–30, clear.

Dec. 1970: Ave. daily temp. of 44° is 6° below normal. Precip. of 2.5″ is 2″ below normal. 1–6, clear. 7–8, .5″ rain. 9–11, cloudy. 12–16, storm, 1″ rain. 17–18, clear. 19–22, .5″ rain. 23–25, clear. 26–27, .5″ rain. 28–31, fair.

Jan. 1971: Ave. daily temp. of 47° is 3.6° above normal. Precip. of 2.7″ is 2″ below normal. 1–8, clear & sunny. 9–14, rainy, 1.5″. 15–20, unsettled. 21–25, clear. 26–27, 1″ rain. 28–29, clear. 30–31, .2″ rain.

Feb. 1971: Ave. daily temp. of 44° is 1.7° below normal. Precip. of 5.5″ is .7″ above normal. 1–2, .5″ rain. 3–7, clear & warm. 8–10, 1″ rain. 11–13, clear. 14–17, stormy, 2″ precip. 3″ snow. 18–20, clear & cold. 21–25, 2″ precip. 3″ snow. 26–28, clear & cold.

Mar. 1971: Ave. daily temp. of 51° is 1.6° below normal. Precip. at 6″ is .5″ above normal. 1, .2″ rain. 2–3, clear. 4–7, rainy, .4″ precip. 8–9, clear. 10–15, storm, 3.2″ rain. 16–19, cloudy. 20–21, showers, .2″ precip. 22–24, pleasant. 25–28, 2″ rain. 29–31, clear.

Apr. 1971: Ave. daily temp. of 59° is 2.3° below normal. Precip. at 4.1″ is normal. 1–9, cloudy, then showers. 10–14, rainstorm, 2″. 15–18, unsettled. 19–23, .1″ rain. 24–28, 2″ rain. 29–30, cloudy.

May 1971: Ave. daily temp. of 67° is 2.6° below normal. Precip. of 5″ is 1.5″ above normal. 1–4, fair. 5–6, .5″ rain. 7–9, cloudy & warm. 10–14, 2.5″ rain. 15–21, fair. 22–24, showers. 25–27, 2″ rain. 28–31, fair & cool.

June 1971: Ave. daily temp. of 76° is .5° below normal. Precip. at 3.9″ is normal. 1–3, showers. 4–6, fair. 7–10, stormy, 2″ rain. 11–19, fair & warmer. 20–21, showers. 22, fair. 23–26, storm, 1.5″ rain. 27–29, cool. 30–31, .4″ rain.

July 1971: Ave. daily temp. of 78° is .5° below normal. Precip. at 4.8″ is normal. 1–3, fair. 4–7, showery, .1″ rain. 8–10, 1.8″ rain. 11–14, Hail, high winds. 15–19, fair. 20–25, 2.2″ rain. 26–27, cool. 28–31, .7″ rain.

Aug. 1971: Ave. daily temp. of 76° is 1.8° below normal. Precip. of 4.5″ is .5″ above normal. 1–4, rainy, .2″ precip. 5–6, clear. 7–9, .8″ rain. 10–14, clear. 15–16, showers, .4″ rain. 17–19, cooler. 20–25, 1″ rain. 26–27, fair. 28–31, hurricane, 2.1″ rain.

Sept. 1971: Ave. daily temp. of 61° is 1.8° below normal. Precip. at 4.5″ is 1.3″ above normal. 1–3, clear. 4–7, storm, 1.7″ rain. 8–14, nice. 15–17, 1.5″ rain. 18–19, cloudy. 20–21, .5″ rain. 22–24, fair. 25–26, .4″ rain. 27–28, cool. 29–30, .4″ precip.

Oct. 1971: Ave. daily temp. of 61° is 1.8° below normal. Precip. at 2.6″ is normal. 1–2, clear. 3–7, 1″ rain. 8–12, fair. 13–15, 1″ rain. 16–17, cloudy. 18–21, .3″ rain. 22–25, cool. 26–28, .3″ rain. 29–31, fair.

Nov. 1971: Ave. daily temp. of 52° is normal. Precip. of 3″ is normal. 1–3, 1″ rain. 4–8, fair. 9–11, 1″ rain. 12–14, cold. 15–17, cold, .5″ rain. 18–25, clear. 26–30, rainy, .5″.

Dec. 1971: Ave. daily temp. of 43° is 1.6° below normal. Precip. of 2.5″, incl. 1″+ of snow, is 2″ below normal. 1–4, .4″ precip. 1″ snow. 5–10, unsettled. 11–14, 2″ rain. 15–16, clear. 17–21, .2″ rain. 22–25, cloudy & cold. 26–27, snow flurries. 28–31, clear, cold.

EDIBLE FRUITS OF FOREST TREES

Courtesy Forest Service, U. S. Dept. of Agriculture

■ THOSE WHO KNOW THE FRUITS, roots, and herbs that can safely be eaten are able to use these foods to good advantage on camping trips — and in emergencies.

PECAN: Grows wild nowhere else in the world except in the Mississippi Valley and south into Mexico.

HICKORY: A dozen species found in East: shagbark, shellbark, mockernut, red, bitternut, water, etc. The last two are bitter.

WALNUT: Black and BUTTERNUT are native in East; four other kinds occur in the Southwest and California.

BEECHNUT: Found in East. Can be roasted and used for coffee.

CHINKAPINS: Found in Southeast only. Golden variety grows in California and Oregon.

FILBERTS and HAZELNUTS: East and West Coasts.

PINYONS: West Coast dwarf trees — nuts in cones about ½ inch long — sold in East as "Indian nuts." Also found on Digger Pines (Calif.), Coulter Pine (Calif.), and Limber Pine (Rocky Mt.), Sugar Pine (Calif. and Ore.), Longleaf Pine (Southeast) — seeds good when roasted.

ACORNS: These are made edible and nourishing by removing the bitter tannin by soaking in water then filtering, or by boiling and leaching with ashes. White Oak acorns are less bitter than Black Oak. In the East, you can eat (roasted or raw or made into bread) acorns from White Oak, Swamp White Oak, Chestnut Oak, Swamp Chestnut Oak, Chinkapin Oak, Dwarf Chinkapin Oak, Live Oak, Post Oak, and Bur Oak.

Emery Oak acorns are sweet and enjoyed in the Southwest. In California, there are the acorns from White Oak, Live Oak, and Black Oak.

PERSIMMONS: Native in East (except North). Not edible until late fall when ripe.

PAW-PAWS: Resemble short bananas. Fully ripe in Southeast, late fall.

CRAB APPLE: Found on both West and East Coasts.

WILD PLUM, CHERRY, CHOKEBERRIES, HAWTHORNS: All edible when ripe and fine for pies, etc.

RED MULBERRY: In East (purplish fruit).

ELDERBERRY: In East (purplish or black berry).

JUNIPER: Western Utah, California, and East. Berries are edible.

SILVER BUFFALO BERRY: Found in Northwest.

OGEECHEE TUPELO: In swamps of Georgia, So. Carolina, and Northern Florida — have sour red fruits often used for preserves or drinks.

TROPICAL PLUMS, SEAGRAPES, COCONUTS, NATIVE PALMS, TEXAS PALMETTO, CALIFORNIA PALM: Many good for preserves, etc. but better for decoration only.

HONEYLOCUST PODS: Found in Appalachian and Mississippi regions are large and sugary.

MESQUITE: Found in arid Southwest. These have edible bean-like pods.

LEAVES and BUDS of SASSAFRAS are used to flavor soups. **BASSWOOD BUDS** are edible, raw or cooked.

BARK: The inner bark of pine, hemlock, spruce, and fir — aspens, cottonwoods, alder, birch, hickory, elm will serve in emergency as edible, raw or ground into a bread.

LARGE BUCKEYE NUTS, BLACK LOCUST, YEW and HOLLY BERRIES, HORSE CHESTNUTS: Do not eat these as they are reputed to be poisonous.

6. SOUTHERN STATES

The times of sunrise, sunset, moonrise, moonset (pages 24–46) and the planets (page 48) are for Boston only. The table below gives the corrections to be used for anywhere in the Southern States. Note the Key Letters for any given day (pages 24–46, 48). Then find the column below in which that Key Letter falls. The figure in that column for the city you seek is the minutes to add or subtract for that city. Example: Jan. 12, sunrise (page 24) is 7:12 A.M. Key Letter N. Key Letter N for Atlanta is +29. So sunrise at Atlanta will be 7:41 A.M., EST. Accuracy will be within 15 min. for Lat. 25–30°, 10 min. for Lat. 30–35°, and 5 min. for Lat. north of 35°. If a city is not listed, interpolate between nearest two cities. (Further explanations appear on pages 90 and 91.)

City	State	Latitude ° ′	Time Used	Key Letters A-E m	F-H m	I m	J-L m	M-Q m
Birmingham	Ala.	33 31	CST	+28	+12	+ 3	− 6	−22
Decatur	Ala.	34 30	CST	+26	+12	+ 4	− 4	−19
Mobile	Ala.	30 42	CST	+39	+19	+ 8	− 4	−24
Montgomery	Ala.	32 22	CST	+29	+11	+ 1	− 9	−26
Little Rock	Ark.	34 45	CST	+47	+33	+25	+17	+ 3
Texarkana	Ark.	33 30	CST	+57	+41	+32	+23	+ 7
Jacksonville	Fla.	30 20	EST	+75	+54	+42	+30	−10
Miami	Fla.	25 47	EST	+79	+52	+37	+21	− 6
Pensacola	Fla.	30 25	CST	+37	+17	+ 5	− 7	−27
St. Petersburg	Fla.	27 46	EST	+84	+60	+46	+32	+ 8
Tallahassee	Fla.	30 30	EST	+85	+65	+53	+41	+21
Tampa	Fla.	27 57	EST	+83	+59	+46	+32	+ 8
W. Palm Beach	Fla.	26 46	EST	+76	+50	+36	+21	− 5
Atlanta	Ga.	33 45	EST	+78	+62	+53	+44	+29
Augusta	Ga.	33 28	EST	+69	+52	+44	+35	+17
Columbus	Ga.	32 28	EST	+83	+67	+56	+44	+28
Macon	Ga.	32 50	EST	+77	+62	+50	+39	+24
Savannah	Ga.	32 05	EST	+68	+50	+40	+30	+12
Covington	Ky.	39 07	EST	+64	+57	+54	+50	+44
Lexington-Frankfort	Ky.	38 03	EST	+67	+59	+54	+50	+41
Louisville	Ky.	38 15	EST	+17	+63	+59	+54	+46
Alexandria	La.	31 16	CST	+56	+36	+26	+14	− 5
Baton Rouge	La.	30 27	CST	+53	+32	+20	+ 9	−12
Lake Charles	La.	30 15	CST	+61	+40	+28	+17	− 4
Monroe	La.	32 30	CST	+51	+34	+24	+14	− 3
New Orleans	La.	29 57	CST	+49	+28	+16	+ 4	−17
Shreveport	La.	32 31	CST	+58	+41	+31	+21	+ 3
Biloxi	Miss.	30 15	CST	+44	+23	+12	0	−20
Jackson	Miss.	32 18	CST	+44	+26	+16	+ 6	−11
Meridian	Miss.	32 28	CST	+38	+20	+11	0	−17
Tupelo	Miss.	34 18	CST	+34	+19	+10	− 2	−13
Asheville	N. C.	35 36	EST	+66	+53	+46	+39	+26
Charlotte	N. C.	35 13	EST	+60	+46	+39	+32	+18
Durham	N. C.	36 00	EST	+50	+38	+31	+25	+13
Greensboro	N. C.	36 04	EST	+53	+41	+35	+28	+16
Raleigh	N. C.	35 47	EST	+50	+37	+30	+23	+11
Wilmington	N. C.	34 12	EST	+51	+36	+27	+19	+ 4
Charleston	S. C.	32 47	EST	+62	+45	+35	+26	+ 9
Columbia	S. C.	34 00	EST	+64	+48	+40	+31	+16
Spartanburg	S. C.	34 57	EST	+65	+51	+43	+36	+22
Chattanooga	Tenn.	35 03	EST	+78	+65	+57	+49	+36
Knoxville	Tenn.	35 58	EST	+70	+58	+51	+45	+33
Memphis	Tenn.	35 09	CST	+37	+23	+16	+ 8	− 5
Nashville	Tenn.	36 10	CST	+21	+ 9	+ 3	− 4	−15
Amarillo	Tex.	35 12	CST	+84	+70	+63	+56	+42
Austin	Tex.	30 16	CST	+79	+58	+47	+35	+14
Beaumont	Tex.	30 05	CST	+65	+44	+32	+20	− 1
Corpus Christi	Tex.	27 48	CST	+83	+59	+45	+31	+ 7
Dallas-Fort Worth	Tex.	32 47	CST	+72	+55	+45	+35	+18
El Paso	Tex.	31 46	MST	+51	+32	+22	+11	− 8
Galveston	Tex.	29 18	CST	+70	+48	+35	+22	0
Houston	Tex.	29 45	CST	+71	+49	+37	+25	+ 3

PLANT RESEARCH — WHEAT STEAK

With 3 billion more mouths to feed by the year 2000 than are now being fed, the world has one-third of a century in which to double its food production — a task which has taken since the dawn of history to perform. Biochemical geneticists are working diligently to create new species of wheat, corn and other grains which will contain the same protein value as a steak. We have heard, with sorrow, of the possibility of having all our foods concentrated into a pill. What a disappointment it will be to buy a hamburger made up of two super wheat rolls — but no meat.

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Postal Laws

AS OF JULY 1, 1970

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10	43o	60c	66c	76c	87c	1.01	1.17	1.35

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	ZONES							
Wt. 1 lb. and not exceeding	LOCAL	1 & 2	3	4	5	6	7	8
Pounds								
2	$0.50	$0.60	$0.60	$0.65	$0.70	$0.80	$0.85	$0.90
3	.50	.65	.70	.75	.85	.95	1.05	1.15
4	.55	.70	.75	.85	.95	1.10	1.20	1.35
5	.55	.75	.80	.90	1.05	1.25	1.40	1.60
6	.55	.80	.90	1.00	1.15	1.40	1.55	1.75
7	.60	.90	.95	1.10	1.30	1.50	1.75	1.95
8	.60	.95	1.00	1.15	1.40	1.65	1.90	2.15
9	.65	1.00	1.05	1.25	1.50	1.80	2.05	2.35
10	.65	1.05	1.15	1.35	1.65	1.90	2.25	2.55
11	.65	1.10	1.20	1.40	1.75	2.00	2.40	2.75
12	.70	1.15	1.25	1.50	1.85	2.15	2.55	2.90
13	.70	1.20	1.35	1.55	1.95	2.25	2.70	3.10
14	.75	1.25	1.40	1.65	2.05	2.40	2.85	3.25
15	.75	1.30	1.45	1.75	2.15	2.50	3.00	3.45
16	.75	1.35	1.55	1.80	2.25	2.60	3.15	3.60
17	.80	1.40	1.60	1.90	2.35	2.75	3.30	3.80
18	.80	1.45	1.65	1.95	2.45	2.85	3.45	4.00
19	.85	1.50	1.75	2.05	2.55	2.95	3.60	4.15
20	.85	1.55	1.80	2.10	2.65	3.10	3.75	4.35
50	1.45	2.75	3.20	4.05	5.20	6.45	8.00	9.35

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Matter for the Blind: All countries, domestic rates apply with certain exceptions.

Small Packets: All countries, 6c each 2 oz. Minimum charge, 26c.

Merchandise Packages to Canada: Packages of 8 ounces or less, 12c for 5 oz., 14c for 6 oz., 16c for 7 oz. and 18c for 8 oz.

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"Other Articles": United States, Canada, 10c per oz.; Mexico, Central America, the Caribbean Islands, Bahamas, Bermuda, and St. Pierre and Miquelon, 40 cents first 2 oz. and 10 cents each additional 2 oz. or fraction; South America, Europe, (except Estonia, Latvia, Lithuania, and U.S.S.R.), and Mediterranean Africa, 50 cents first 2 ounces and 20 cents each additional 2 oz. or fraction; other countries, 60 cents first 2 oz., 30c each additional 2 oz.

Post Cards and Aerogrammes (air letter sheets): Cards, United States, Canada and Mexico, 8c each (single); all other, 13c each (single). Aerogrammes, 13c each.

Air Parcel Post: For detailed information, consult your local Postmaster.

McCONKEY'S FERRY *Continued from page 97*

Delaware River to turn the tide. But his army diminished as they fled for three weeks across New Jersey, leaving Newark, New Brunswick, Princeton, and Trenton occupied by the enemy. And had Howe energetically pursued Washington's troops in their flight, he very well might have captured the General and his army.

By the time the Americans reached New Brunswick, George Washington had lost 5000 men. Now, on December 1st, his army was down to a bare 3000—many without shoes, stockings, or shirts. And sickness was rampant.

In a stroke of great foresight Washington sent some men ahead to procure every available boat or craft and secure them all at McConkey's Ferry for transporting his troops. Then when sure not a single boat remained elsewhere, Washington returned to Princeton and fell back to Trenton with a rear guard for protection, destroying bridges and felling trees to delay pursuit.

It took two days for the Durham Boats, including McConkey's Ferry, to take the American troops across to the Pennsylvania shore. It gave the townsfolk a good laugh to see the straggling army with more boats on hand than they were using.

But the American troops had the last laugh as they fired across at the British advance units who could find no boats for pursuit!

Howe either overlooked or disregarded building rafts, for which there was lumber at Trenton. Thinking it easier to wait for the river to freeze, he ordered his men into winter quarters on December 12. American troops stationed at McConkey's Ferry in a crude shanty or in the bushes kept the enemy under close surveillance. And Lord Howe returned to New York on December 16 for a 10-day celebration of his successes. Cornwallis planned a return to England where they thought the war was over. On December 18 Washington wrote his brother, John, "The game is almost up;" but a spy, John Honeyman, gave Washington information on December 22 to cause his move on Trenton. The historical crossing took place on Christmas night, 1776, when Washington and his starving, ragged, bleeding troops routed the British and their Hessians to win this crucial Battle for Independence.

It is recorded that William McConkey personally helped in launching the boats, and "enjoyed his exciting role." As a result—and not to mention holiday indiscretions by the British—the Americans took Trenton in two hours without losing a man!

Thus they won a new respect for the Cause of liberty. "The minds of the people were much altered. . . ." Men volunteered for military service "by the companies." The effect was amazing. Successes followed at Princeton and Yorktown.

Thus William McConkey turned out to be the man with the right ferry at the right place and at the right time to serve George Washington's need.

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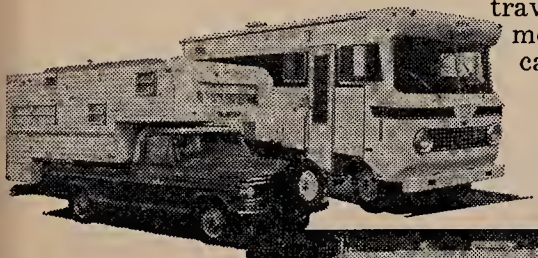

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MOON WEATHER TABLE,

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This table, and the accompanying remarks, are the result of many years' actual observation, the whole being constructed on a due consideration of the attraction of the sun and moon, in their several positions respecting the earth, and will, by simple inspection, show the observer what kind of weather will most probably follow the entrance of the moon into any of its quarters, and that so near the truth as to be seldom or never found to fail.

This weather table will answer very well for anywhere in the United States. It is taken from the 1849 issue of The Old Farmer's Almanac and was widely used before the advent of the Weather Bureau. Do not be surprised if the forecasts arrived at by this table do not agree with those on other pages. THE OFA goes by many factors besides the moon.

WEATHER TABLE FOR ANYWHERE

If the new moon, 1st quarter, full moon, or last quarter happens.

Moon	Time of Change	In Summer	In Winter
	From Midnight to 2 A.M.	Fair	Hard frost, unless wind be S. or W.
	From 2 A.M. to 4 A.M.	Cold, with frequent showers	Snow and stormy
	From 4 A.M. to 6 A.M.	Rain	Rain
	From 6 A.M. to 8 A.M.	Wind and Rain	Stormy
	From 8 A.M. to 10 A.M.	Changeable	Cold Rain if wind be W.; Snow if E.
	From 10 A.M. to Noon	Frequent Showers	Cold & high wind.
	From Noon to 2 P.M.	Very rainy	Snow or rain.
	From 2 P.M. to 4 P.M.	Changeable	Fair & mild.
	From 4 P.M. to 6 P.M.	Fair	Fair.
	From 6 P.M. to 8 P.M.	Fair — if wind N.W. Rain — if S. or S.W.	Fair & frosty if wind N. or N.E.: Rain or snow if wind S. or S.W.
	From 8 P.M. to 10 P.M.	Same as from 6 P.M. to 8 P.M.	
	From 10 P.M. to Midnight	Fair	Fair & frosty.

Observations. — 1. The nearer the moon's changes, first quarter, full, and last quarter are to *midnight*, the fairer will it be during the next seven days.

2. The space for this calculation occupies from ten at night till two next morning.

3. The nearer to *midday*, or *noon*, the phases of the moon happen, the more foul or wet weather may be expected during the next seven days.

4. The space for this calculation occupies from ten in the forenoon to two in the afternoon. These observations refer principally to the summer, though they affect spring and autumn nearly in the same ratio.

5. The moon's change, first quarter, full and last quarter, happening during six of the afternoon hours, i.e., from four to ten, may be followed by fair weather; but this is mostly dependent on the *wind*, as is noted in the table.

6. Though the weather, from a variety of irregular causes, is more uncertain in the latter part of autumn, the whole of winter, and the beginning of spring, yet, in the main, the above observations will apply to those periods also.

7. To prognosticate correctly, especially in those cases where the *wind* is concerned, the observer should be within sight of a good *vane*, where the four cardinal points of the heavens are correctly placed.

The above table was originally formed by Dr. Herschell, and is now published with some alterations founded on the experience of Dr. Adam Clarke.

TO THE WEATHER-WISE

M. Toalda of Padua (circa 1720) asserted that the weather changes most often (85.8% of the time) when the new moon comes in; 83.4% with the full, and 66.7% with the other two phase changes. Recent studies by scientists with the U.S.W.B. and N.Y.U. show heaviest rainfall comes 3 to 5 days after the new and the full moons.

Many blossoms on plum trees in the Spring, heavy fruit crops in the Fall, oak (and other) leaves remaining on trees in December indicate a severe Winter is coming up. The thickness of Fall fur on most animals, goose bones, pigs' melts, distance between caterpillar stripes also are Winter predictors. Birds, particularly owls, pileated woodpeckers, and swallows are predictors — as is, of course, the woodchuck. When hornets build nests high off the ground, expect deep snows. Bees, spiders, and ants — as well as certain flowers — are useful as short-term predictors. Nature, on the whole, however, is not easily understood and birds and animals, who should know, are often as misled by her as is mankind.

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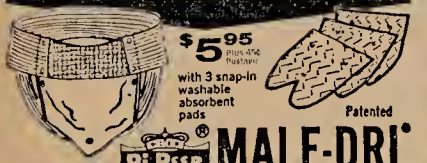

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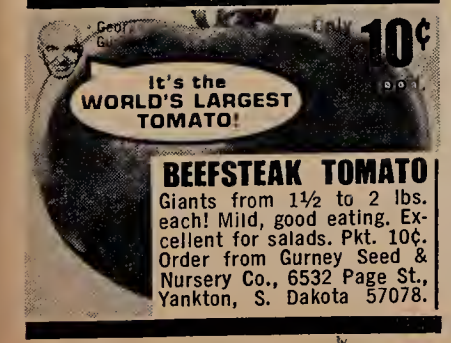

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MILKWEED FOR LUNCH?

by Paul J. Reale

Ever dine on Asclepias syriaca? If not, you've been missing something. This, at least, is how a remarkable number of persons feel about it, though they're more likely to address the dish as milkweed, its common everyday name, rather than use the tongue-twisting scientific title.

Milkweed, its partisans contend, is perfectly edible, matching in savor several of the vegetables so painstakingly cultivated in the garden. The argument, therefore, is that the plant ought to be regarded not as a weed so much as a wild, palatable foodstuff which, if harvested at the right time and properly prepared, can provide for a measure of memorable feasting.

Friends of the plant are the first to concede that this news comes more in the nature of rediscovery than discovery, because the Indians of long ago employed milkweed extensively, serving it as heaping big helpings with thick succulent slabs of buffalo meat. They also gathered the honey from the milkweed blossoms for use as sugar, and little Indians snapped the midribs of leaves to release the milky juice which, when coagulated, was chewing gum.

So modern-day housewives are assured that they may move forward in all safety, like the more adventurous cooks in the region, for you simply can not miss with milkweed. And besides, who is to say it isn't worth a try, food prices being what they are?

The eatable components of the milkweed are its sprouts, showing up in early spring; the topmost newly arrived leaves, the clusters of flower buds, and the young tender pods. The sprouts, picked when they are no more than six or eight inches tall, are bundled together with string and processed like asparagus, to be salted and served in hot melted butter or on buttered toast liberally doused in a cream sauce. The leaves are cooked in much the same manner as spinach, the substance they most nearly resemble in appearance and taste. A broccoli-like food is obtained from the buds, and the pods may be utilized as a cook does okra, preferably in soups. Thus, the milkweed yields, in effect, the equivalent of four vegetables, all during the spring and early summer months.

Is it difficult to ready the plant for knife, fork and plate? Champions of Asclepias insist that nothing's easier. The wild, bitter-tasting milky juice must be extracted, and the method is the same whether you've got pods, leaves, buds or sprouts on the menu. The material, after a thorough washing, is placed in a pot of boiling water over a high flame. After a minute, the water is drained off and immediately replaced with a fresh supply of boiling water, this too being poured away after a minute. Now that the milkweed is "tamed," you cover the vegetable with boiling water for a third and final time and let the boiling proceed undisturbed for 10 minutes.

Scientists point out that the milkweed sinks its sturdy roots deep into the earth and takes a firm grip, which means that the plant could be an effective weapon in the battle against shoreline erosion.

We're advised that the milkweed juice contains an excellent meat-tenderizing material which guarantees a multimillion-dollar industry, if someone can just get the plant to produce the substance in more practicable amounts.

It is also noted that the juice is sticky (remember the Indians' chewing gum?), which indicates a potential in the field of adhesives.

And Asclepias might be domesticated so that the floss—lightweight, warm and waterproof—appears in vast, processable quantities, comparable to cotton, for use in a revolutionary new kind of clothing.

Yes, it's all worth thinking about . . . but meanwhile, won't you please have another helping of milkweed?

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ANSWERS TO CHARADES, etc.

ON PAGE 79

(I) Spiro Agnew (1) spear, (2) the letter "o", (3) "ag" is two thirds of "age", (4) new. **(II)** Before the race began, they exchanged horses. **(III)** A naval destroyer. **(IV)** Space.

(V)

(VI) (a) One is a tainted paper and the other is a painted taper, (b) One turns on a burner, the other burns on a turner, (c) One is learning about habits in rats, the other is learning about rabbits in hats. **(VII)** Brown is the pilot. **(VIII)** Vietnam—clues refer to the letters. **(IX)** (a) 3, (b) Cupid comes on the 14th, (c) 12 x 17 = 204, (d) 204 minus 18 is 186, (e) 6 divided into 186 is 31, (f) 20 fluid oz. is 1 and 31 equals 32, (g) 32 minus 28 is 4. There are four inches in a hand measure.

ANSWERS TO OLD-FASHIONED PUZZLES ON PAGE 78

(I) 48 feet. **(II)** 9.48%. **(III)** length, 30 feet; width, 24 feet. **(IV)** If you cut the third link, you'll have two links together, a single link (the third) and four links together. First day: give him single link. Second day: take the single link back and give him the two links. Third day: single link again. Fourth day: take his three links and give him the four-link group. Fifth day: single link. Sixth day: substitute the single with the double. Seventh day: single. **(V)** Multiply one digit of the answer by the next digit. Last number, therefore, is 8.

(VI)
$$987654321 = 45$$
$$-\,123456789 = 45$$
$$\overline{\qquad\qquad\qquad}$$
$$864197532 = 45$$

(VII) 3:39. **(VIII)** 68 years old. **(IX)** 300 chickens. **(X)** 6400 rods.

WEDDING GIFTS

Anniversaries and types of gifts that mark their observance are listed below. The first is a traditional list recommended by social authorities. The second list was adopted in 1948 by the Jewelry Industry Council in cooperation with the Retail Jewelers of America, Inc., and the National Wholesale Jewelers.

YEAR	TRADITIONAL-LIST	YEAR	JEWELERS-LIST
1st	Paper	1st	Clocks
2nd	Cotton	2nd	China
3rd	Leather	3rd	Crystal, Glass
4th	Fruit and Flowers, Silk	4th	Electrical Gifts
5th	Wooden	5th	Silverware
6th	Sugar and Candy, Iron	6th	Wood
7th	Woolen or Copper	7th	Desk and Pen and Pencil Sets
8th	Bronze or Copper	8th	Linens, Laces
9th	Willow or Pottery	9th	Leather
10th	Tin or Aluminum	10th	Diamond Jewelry
11th	Steel	11th	Fashion Jewelry and Accessories
12th	Silk or Linen	12th	Pearls or Colored Gems
14th	Ivory	13th	Textiles and Furs
15th	Crystal	14th	Gold Jewelry
20th	China	15th	Watches
25th	Silver	16th	Silver Holloware
30th	Pearl	17th	Furniture
35th	Coral	18th	Porcelain
40th	Ruby	19th	Bronze
45th	Sapphire	20th	Platinum
50th	Golden	25th	Silver Jubilee
55th	Emerald	30th	Diamond
60th	Diamond	35th	Jade
75th	Diamond	40th	Ruby
		45th	Sapphire
		50th	Golden Jubilee
		55th	Emerald
		60th	Diamond Jubilee

GLOSSARY OF ASTRONOMICAL TERMS, ETC.

Aph. — Aphelion . . . Planet revolving about Sun reaches point in its orbit farthest away from the Sun.

Apo. — Apogee . . . Moon reaches point in its orbit farthest from Earth.

Conj. — conjunction . . . moment of closest approach to each other of any two heavenly bodies.

Declination (see top left hand calendar pages) . . . measure of angular distance any celestial object lies perpendicularly north or south of celestial equator. Exactly analogous to terrestrial latitude. OFA gives declination at time each day the Sun is due South.

El. — elongation . . . apparent angular distance of a member of the solar system from the Sun as seen from the Earth.

Inf. — Inferior . . . Inferior conjunction is when the Planet is between the Sun and the Earth.

Moon Runs High or Low . . . day of month Moon Souths highest or lowest above the horizon.

Occulted . . . hidden from view.

Opposition . . . time when Sun, and Moon or Planet appear on opposite sides of the sky (elongation 180 degrees).

Peri. — Perigee . . . Moon reaches point in its orbit closest to Earth.

Peri. — Perihelion . . . Planet revolving about the Sun reaches point in its orbit closest to Sun.

R.A. — Right Ascension . . . the measure Eastward along the celestial equator of any celestial body from the vernal equinox to the point where the circle which passes through the object perpendicular to the celestial equator intersects the latter.

Stat. — stationary . . . when the apparent movement of a Planet against the background of Stars stops — just before same comes to opposition.

Sunrise and **Sunset . . .** visible rising and setting of Sun's upper limb across the unobstructed horizon of an observer whose eyes are 15 feet above ground level.

Sun Fast . . . the times given in this column must be subtracted from your Sun Dial to arrive at the correct time.

Sup. — Superior . . . Superior Conjunction is when the Sun is between the Planet and the Earth.

Twilight . . . begins or ends when stars of the sixth magnitude disappear or appear at the Zenith — or the Sun is appr. 18 degrees below the horizon.

Underground Moon . . . one which changes its phases between 12 M. and 1 A.M.

I COLLECT OLD ALMANACS

I have collected almanacs for some thirty years—from the old Books of Hours of the 1200 to 1600 period, through the Austrian Alter Bauernkalendar (oldest in the world) to the first editions of the Old Farmer's Almanac and other American Almanacs. I have purchased from individuals, estates, institutions, book stores. I have been given innumerable editions and, in turn, have given away countless early issues.

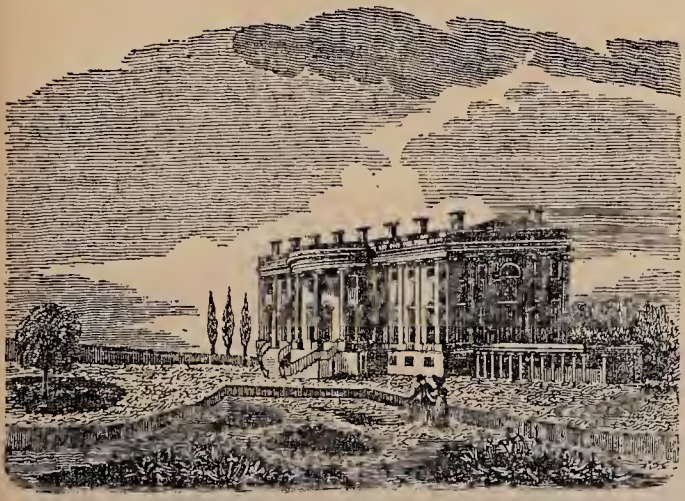
In short, almanacs have been my avocation as well as vocation. They have taken me to every state of the union and into the offices of the famous, the infamous and everything in between. As I mentioned in the beginning of this book, wherever I went, or whoever I spoke to, whatever almanac I happened to have in my hand seemed to elicit a smile and good will—i.e. an im-

The article "I Collect Old Almanacs" was excerpted from Chapter XI of "America and Her Almanacs—Wit, Wisdom & Weather 1639-1970" *by Robb Sagendorph, published by Yankee, Little, Brown, copyright 1970, all rights reserved.*
To order the entire book, send $10.00 to YANKEE INC., Dublin, N. H. 03444.

ediate entree.* The one exception to this rule occurred in a garden of roses!

This little incident had its beginning in the late 1950's when I consulted with the White House Librarian. I wished to know if the White House library had copies of the 18th century editions of the Old Farmer's Almanac. I learned it did not. Inasmuch as the cornerstone of the White House had been laid in the same year that Robert B. Thomas began the Almanac, I believed these 18th century copies should be there.

Several years later, in 1961, as a member of an art group I was invited to the White House and introduced to President Kennedy in the Rose Garden there. I had brought with me for the occasion a small bound volume containing the almanacs of 1793 to 1799. I started to present this volume to him—but alas, no! The secret service men around him, suspecting it was a bomb, immediately snatched it—and took me with it to an isolated corner. After I explained what it was all about,



The house of the President of the United States in 1820

* I have learned, incidentally, that it does not pay to fool around with almanac lovers. Many is the writer and broadcaster who has attempted to poke fun at The Old Farmer's Almanac and has found himself scorned by the very friends he had been trying to cultivate with his ill-advised humor.

the volume did find its way to the library. Afterward I had a very nice note from Mrs. Jacqueline Kennedy thanking me for it.

Another experience I'm fond of remembering is my visit to the Rosenbach Foundation in Philadelphia. Its headquarters are not in the business district, but on an attractive, restored street in the historic old part of the city. There, in one of the old houses (purchased by the brothers Rosenbach because it had an elevator) I trundled to keep the appointment given me some weeks in advance. My request had been simple; a three-minute perusal of the first edition of *Poor Richard's Almanac* by Richard Saunders. I had expected to find this most expensive almanac in the world, for which the Rosenbachs had paid $50,000, under glass.

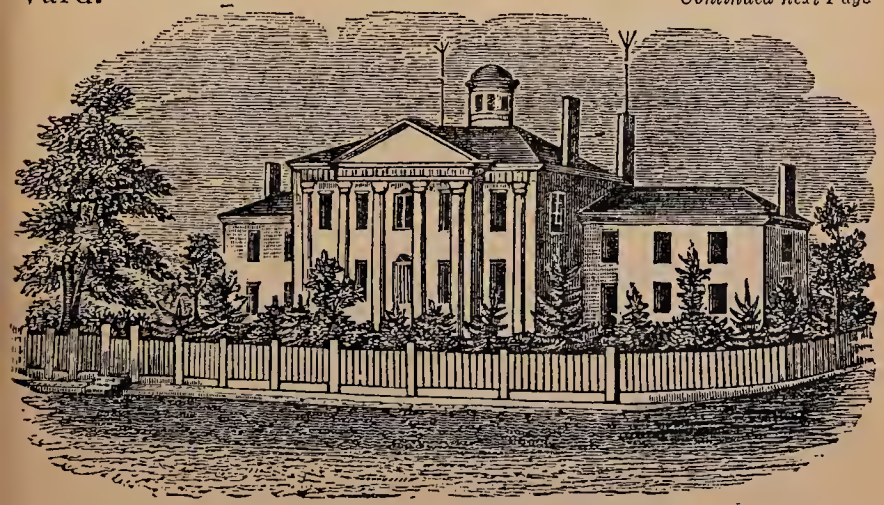
The visit stands out, even though it took place in the fifties, clearly and pleasantly. I was conducted up three flights, led into a small library, and asked to wait a few minutes. Then Dr. Rosenbach appeared. He had the almanac in his hand. He sat opposite me, chatting about this, that, and the other—then asked me if I would mind looking at the almanac alone as he had other things to do. Imagine anyone trustful enough to leave a fifty-thousand-dollar piece of paper, only about 2⅝ inches wide by 5½ inches high, alone in the hands of a complete stranger. I was so overcome I scarcely dared to turn its pages. Upon his return he pointed out to me the fine points which proved it was a "first impression" and then the conversation turned to his and his brother's experiences in collecting. Among them were one or two with a son of President Hoover. I have forgotten the context but I do remember his saying that Herbert Hoover had almost never handwritten a letter to anyone and rarely even signed his name. The legacy his heirs will receive will be for the

most part in a number of his signatures—each one of considerable value.

Some of my most rewarding visits were to the American Antiquarian Society in Worcester, Massachusetts, which owns the largest and finest collection of almanacs in the world. Founded by Isaiah Thomas, almanac publisher and printer of that city, it is a veritable goldmine of New Englandiana and Americana. Clifford K. Shipton, Curator during one of my visits, was only one in a long line of distinguished authors in that position. His facility at bringing Revolutionary (and earlier) personalities to life is unequalled anywhere.

Mr. Shipton showed me the Society's portraits of the Thomas family. These were in better condition than the ones I had bought but seemed to be by the same limner, one Belknap (an artist who used about the same bodies for everyone but painted on a new head). He showed me the early Tulley almanacs and the 17th century Cambridge "Philomaths." One of the latter, through the death of the heir to it, had just come up for bids. He and either the Houghton or Widener Library at Harvard were bidding against each other for it. My memory may not be correct but it seems to me it went to Harvard.

Continued next Page



Antiquarian Hall, Worcester, Massachusetts, of the American Antiquarian Society

When Almanacks are offered for sale, they will be listed in various ways. There will be those indicating the actual title of the almanac, or again by the name of the editor. It is always important to know, whatever the title, who is its editor.

The costs and selling prices of various almanacs vary in almost direct proportion to the apparent desire on the part of private collectors, libraries, and institutions for any given copy. A complete set of *The Old Farmer's Almanack* some years ago brought $300. It is doubtful one could find one for that price today. The "Rosenbach" *Poor Richard* brought $50,000. The Ames' editions (early) command anywhere from $5.00 to $30.00. Stray single copies of other almanacs often change hands at anywhere from $1.00 to $10.00 each. Copies dated after 1850 are not worth much more than the cover price. Any American almanac before 1700 has a value of at least one hundred dollars. Some will bring a lot more. Special almanacs such as the *Ellicott* which carried, apparently, George Washington's handwriting in the margins of the front cover, sell from $300 up. Condition is always important.

Some editions of *The Old Farmer's Almanack* by Robert B. Thomas are harder to come by than others. The issue for 1806 was withdrawn from sale because of the inclusion of a long poem called "Jonathan's Courtship." In the edition for 1939 Robert Frost's original poem "October" first appeared. The 1942 edition (150th) was limited by wartime paper restrictions. Prices on old almanacs vary from the price on the cover to as high as four hundred dollars each. There is no real authority on such prices; one can obtain what one is offered, or what one can get. I had to give, for example, $75 to obtain The Farmer's Almanac of 1804.

Three of the most interesting almanacs in my own collection are on the opposite page.

The NORTH-AMERICAN'S

ALMANACK,

And Gentleman's and Lady's DIARY,

For the Year of our LORD CHRIST

1776.

Being Biſſextile, or Leap-Year,
And the 16th Year of the Reign of GEORGE the IIId.
Calculated for the Meridian of Boſton in New-England,
Lat. 42 Deg. 25 Min. North.

CONTAINING,

The Lunations, Eclipſes of the Luminaries, Spring Tides, Judgment of the Weather, Feaſts and Faſts of the Church, Friends Meetings, Courts in the four New-England Governments, Riſing, Southing and Setting of the Seven Stars, Sun and Moon's Riſing and Setting, Moon's Place, time of High Water Morning and Evening, Clock Equations, Public Roads, and Stages to put up at, An account of the battle of Lexington, Deſcription of a Tory, and a Whig a Bacchanal on the Earth's drinking Healths, Receips for the cure of the Dyſentery, a Hiſtory ſhewing how the Charters in Old and New-England were taken away in the Reign of King Charles the IId. Directions for preſerving the Health of the Soldiers in the Camp, Sir Richard Rum's advice to the Soldiers, ſhewing the good effects of Spiritous Liquors when they are uſed with moderation, and their pernicious effects when uſed to exceſs, with a cure for Drunkenneſs, &c. &c.

By SAMUEL STEARNS,

Student in Phyſick and Aſtronomy.

HEAVEN is our guard, and innocence its care,
Nor need the juſt the worſt of dangers fear:
Pities the defenceleſs, poor man's grief,
And ſends him, when he calls, help and relief;
Its arm, the ſureſt ſuccour and the beſt;
Delivers and revenges the diſtreſs'd.

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North American Almanac 1776 by Samuel Stearns. Firsthand account of the Battle of Lexington.

LOW'S ALMANACK,

AND

ASTRONOMICAL AND

Agricultural Register;

FOR THE

YEAR OF OUR LORD AND SAVIOUR JESUS CHRIST,

1819.

Being the Third after Biſſextile or Leap-Year,
And the FORTY-THIRD of the Independence of the United States.
Calculated for the Latitude, &c. of Boston, and the N. England States.

By NATHANAEL LOW,

SOUTH-BERWICK.

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PUBLISHED AND SOLD, WHOLESALE AND RETAIL, BY
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No. 4, Cornhill.---Sold alſo by the principal Booksellers and Traders in New-England. Price 6 dls. a groce; 62½ cts. the ; 9 cts. ſingle.

Nathanael Low, 1819, 1820. First signed woodcuts.

An Aſtronomical Diary,

OR, AN

ALMANACK

For the Year of Our Lord CHRIST

1726.

And from the Creation of the World, according to the beſt of Prophane Hiſtory, 5675. But by the Account of the Holy Scripture, 5688. It being the Second after *Biſſextile* or Leap-Year, And the Twelfth Year of the Reign of Our Moſt Gracious Sovereign Lord KING GEORGE Wherein is Contain'd the *Lunations, Eclipſes* of the Luminaries, the *Planets* Motions & Mutual *Aſpects*, the Suns Riſing and Setting, Time of *High Water, Courts, Spring Tides*, judgment of the *Weather*. Together with many other Things neceſſary for ſuch a Work.

Calculated for the Meridian of Boſton, N. England, *Whoſe Latitude is 42 deg. 25 min North.*

By NATHANIEL AMES, *Jun.*
Student in Phyſick and Aſtronomy.

NOW Seventeen hundred & Twenty Six the Sun,
His annual courſe ſince CHRIST *his Birth hath run.*
Strange Revolutions in this time have been,
In divers Lands, Kingdoms and Countries ſeen.
Some Years were happy, ſome with Woes perplex,
And GOD *knows who ſhall Live unto the next.*

BOSTON: Printed and Sold by *B. Green*, and Sold alſo at the Bookſellers Shops. 1726

An Astronomical Diary or Almanac by Nathanael Ames (and his successors) 1725-1795. This was the first almanac with a really long run.

WATER SUPPLY *Continued from page 109*

of water daily in all parts of the world are available for our use, but it is in an unacceptable form. Brackish, saline (sea) and other mineral-laden water can be made acceptable to man's needs by desalination processes. Desalination processes fall into two groups: those processes which remove the salt from the saline solution and those which remove the water from solution.

Multi-stage flash distillation is the process most widely used at the present time, particularly for sea water conversion installations operating at rates of one million gallons per day or greater. The process involves a phase change from liquid to vapor and back to liquid again, requiring appreciable heat energy. This system can be applied to any quality water and a high purity product results. Reverse osmosis and electrodialysis — the membrane processes — are generally limited to brackish water sources. Energy requirements of the membrane processes are less than the distillation process, because a phase change is not involved.

Present desalting plants in arid locations range in capacity to over seven million gallons per day. It is predicted that by 1980 there will be several plants with a capacity of one hundred million gallons per day or greater, installed throughout the world. Kuwait presently has a greater desalting capacity than any other country with over 30 million gallons per day.

A large portion of the heat energy used in steam turbines of an electric power generating plant is exhausted to waste. By combining the power generating station and a saline water conversion plant, efficiency is increased through a dual-purpose installation. The cost of the water can be lowered substantially by using the heat which would normally be wasted by the power plant. The income realized from the sale of electricity can further reduce the cost of desalting water.

Large dual-purpose plants show particular promise where the power is nuclear-generated. The dual-purpose plant is usually located near the salt water source because water conveyance is so expensive. A dual installation, such as one proposed for the Los Angeles area, would produce enough water for 750,000 people and enough electricity to serve two million people.

Water in this country costs anywhere from 10 cents to 40 cents per 1,000 gallons when produced by conventional municipal water treatment plants. The average price for municipal water is 32 cents per 1,000 gallons delivered to the tap. That is just about 1 cent for 30 gallons, or less than 10 cents a ton. Obviously, development of new or supplemental sources should not be considered until existing supplies are being fully and effectively utilized.

Fifteen years ago the cost of producing fresh water from sea water ranged from $4.00 to $5.00 per 1,000 gallons. Today, plants using distillation processes and having capacities of one million gallons per day are producing fresh water for much less than $1.00 per 1,000 gallons. These lower costs re-

t partly from the building of larger plants with more efficient designs and operation. Desalination authorities are predicting desalting costs of 20 cents to 40 cents per 1,000 gallons by 1980.

Even at today's costs, desalination provides the only logical answer to many water supply problems. In the future, improved processes and increased efficiencies will drive down the costs of desalted water.

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STONE-AGE POTION *Continued from page 55*

covered by Stone-Age man, is still called "the greatest pain-killer the world has ever known." Opium is the dried milk-juice from the heads of the annual Eurasian poppy, *Papaver somniferum.* Morphine, isolated from opium in 1807, is considered the most important of all specifics derived from plants. Scarcely any other drug can compare with morphine in the wideness of its applications; it is used in the treatment of 40 different diseases.

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An ancient remedy was the genesis of today's most universal pain-killer, aspirin. Stone-Age medicine men prescribed "a decoction of willow-bark" to ease pain. Subsequently, about 2000 years ago, Pedanios Dioscorides wrote in his monumental *De Materia Medica* "the white willow of Eurasia is most efficacious for pain and an excellent fomentation for ye gout."

The Andean Indians produced a cure centuries ago for the "world's most costly disease in money and lives," malaria. They treated the "great fever" with quina-quina, bark of the cinchona tree. Today quinaquina's derivative, quinine, is the effective, universal antimalarial. Similarly, Brazilian Indians for centuries successfully treated disastrous dysentery with ipecac (*Cephaelis ipecacuanha*). Today ipecac's derivative, emetine, has brought the mortality rate for amoebic dysentery down from the original 30% to less than 5%. Similarly, but on the other side of the world, Shen Nung, "China's first god of healing," who compiled the world's first pharmacopoeia about 5000 years ago, prescribed ma huang (*Ephedra vulgaris*) for bronchial distress. Today ma huang's derivative, ephedrine, is the standard remedy for asthma and hay fever.

And so the Stone-Age potions that developed into Space-Age drugs go on and on. A complete listing would fill a volume. Even the forerunners of "Wonder Drugs", we now know, were used as medicinals by Stone-Age man.

Continued on page 135

According to Helmuth M. Boettcher, author of *Wonder Drugs*, mud is one of man's oldest medicinals. Certain muds are effective antibiotics. Mud, especially the black, slimy kind, is full of millions of soil fungi (*Streptomyces*) from which the "Wonder drugs" — Streptomycin, Aureomycin, Terramycin, and others were isolated.

Continued from page 110

Sept. 1971: Ave. daily temp. of 64° is normal. Precip. of .9" is .7" below normal. 1–5, partly cloudy, warm. 6–8, rain, .5" precip. 9–10. clear, hot. 11–13, showers, .2" precip. 14–20, partly cloudy. 21–25, drizzle, .2" precip. 26–28, clear, very hot. 29–30, partly cloudy.

Oct. 1971: Ave. daily temp. of 53° is 1° below normal. Precip. of 4.8" is 1.2" above normal. 1–4, rainstorm, 1.3" precip. 5–9, beautiful & warm. 10–18, 2 rainstorms, 2.8" precip. 19–21, clear. 22–23, rain, .2" precip. 24–25, cloudy. 26–29, rain, .5" precip. 30–31, clear, cooler.

Nov. 1971: Ave. daily temp. of 47° is 1.4° above normal. Precip. of 6.2" is .6" above normal. 1–6, heavy rainstorm, 2" precip. 7–8, cloudy. 9–15, light rain & drizzle, 1.1" precip. 16–18, partly cloudy. 19–20, drizzle, .1" precip. 21–22, clear, cold. 23–25, rainstorm, 2.5" precip. 26–27, cloudy, 28–30, rain, .5" precip.

Dec. 1971: Ave. daily temp. of 45° is 4° above normal. Precip. at 6.7" is .7" above normal. 1–5, rain, 1.6" precip. 6–7, clear. 8–10, rainstorm, 1" precip. 11–16, rain & drizzle, 1.3" precip. 17–18, partly cloudy. 19–24, heavy rain, 2.5" precip. 25–27, partly cloudy. 28–30, light rain, .3" precip. 31, cloudy.

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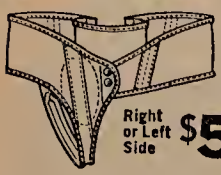

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KLONDIKE

Continued from page 111

According to Jamie, "Wreckage was strewn everywhere. Below the canyon we saw acres of salvaged stuff spread out to dry. It was turbulent water, all right. Still, it didn't look any more dangerous to us than Massachusetts Bay in a nor'easter and we had all survived plenty of them. Maybe our dories looked like cockleshells to these landlubbers, but we had faith in them. We made up our minds to chance the water passage. First we took the dogs around. Then, waiting until the Mounties were busy elsewhere, we shoved off."

With skill sharpened in Atlantic combers they maneuvered their dories safely through the four-mile stretch of white water. Pausing only to pick up the dogs they continued triumphantly on the down-river journey. The worst hazard was behind them. Ahead, hopefully, was the end of the rainbow.

Sadly, however, they failed to find their pot of gold that summer, although they spent weeks in prospecting. With winter creeping toward them they held a council. What to do next? Jamie had a suggestion. A born farmer, he had tucked some seeds in his bag before leaving Scituate and had taken enough time from gold-seeking to raise a small but good crop of vegetables. Garden truck was bringing fantastic prices in Dawson. How about homesteading here and following a different road to riches? A good idea, the others agreed. First they would continue on to Dawson to arrange for their grant of land. Then while Charlie and Steve remained here Jamie

would go home and get seeds and tools.

But, reasoned the Yankees, why not pick up a dollar on the way? In a swale along the river bank they had observed a lush growth of wild grass that should make good hay. In Dawson, hay was as scarce as vegetables. All they had to do was build a raft big enough to carry a good load of it, plus three men, nine dogs and all their belongings, — say about thirty by sixty feet.

It wasn't easy building the raft—but cutting that grass! They had neither scythe nor sickle, nothing larger than a hunting knife. Working on their knees, they had to cut and grasp a handful at a time. In this way they finally harvested about four tons. Then they loaded the raft and floated it out.

"We had hardly got started," Jamie chuckled, "when we were hailed by a stranger in a scow with six horses. He turned out to be a Mountie badly in need of food for his animals. Would we sell him a ton of grass and accept a receipt that would be honored in full when we got to Dawson? It didn't take long to finish that deal!"

It was a slow, two-week trip to Dawson and now they were barely one step ahead of winter. It closed in on them and clogged the river with ice when they had only three miles to go. By breath-snatching toil they managed to force their raft on a bank and hustle its cargo twenty feet up to a place of safety from rising waters. Then, completely exhausted, they crawled into the stack of hay and fell asleep. *Cont. next page*

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The next day Jamie, thought by the others to have the best gift of gab, was elected to hike into the city and consult with the police. He found headquarters and told his story. The sergeant examined the receipt and asked him how much he wanted for that ton of grass. Jamie hedged, not having the faintest idea of its worth.

"Well," said the sergeant, "top quality comes to eight hundred dollars a ton but yours is inferior. I don't see how I can pay you over five hundred."

Five hundred dollars a ton! Jamie could hardly get his jaw closed. Then the sergeant offered to buy the rest of the crop at the same price and send his own men out to bring it in.

"So we collected two thousand dollars in gold dust," Jamie grinned, "and that was all the money our year in the Klondike netted us."

Continued from page 92

Dec. 1971: Ave. daily temp. of 29° is 1° below normal. Precip. will be 5.2", incl. 12" snow, 1" above normal. 1, clear & cold. 2–5, snowstorm, 2.7" precip., 4–8" snow. 6–11, clear & cold. 12–13, .5" rain. 14–15, clear. 16–20, 1.5" precip., 4–6" snow. 21–22, cold. 23–26, .5" precip., 3" snow. 27–31, clear & very cold.

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RACE *(Cont. from page 71)*

had not been fed. He was squealing hungry and let it be known on his ride up to the starting point. Colby let the pig out, and with a switch hustled his racer right along the home course. In the feeding trough of his pen the pig found six ears of yellow corn. The second day Colby had trouble in keeping up with his porker. The third day the pig shot out of the crate, when released and went down the road like a white streak. He was after his 100 percent golden corn. From then on Colby stationed himself along the course to see if the pig maintained his speed. He found the White Yorkshire kept his running pace until he got to the corn.

The day of the race excitement ran high and the whole countryside seemed to be there lining the roadsides. Two judges were agreed upon, one at the start and one at the finish. Colby stayed at the finish line, being mostly interested in the finish. As planned, at 10:00 A.M. the starter judge shouted "go". It was a standing start for both. The young Colby boy swung the crate door wide. The pig went forth like a white flash. The horse was so upset, it broke into a running start and a little time was lost to get him back to a trot. Twice Sam Dana got his horse up to the pig but each time he broke into a run when attempting to pass. The pounding of hoofs and rattle of wheels had no effect on the pig. Only the golden corn and a belated breakfast was on his mind. Colby's porker came over the line with thirty feet to spare. There was lots of joking, debts were paid and it was called a day. Who said the old-timers led a dull life?

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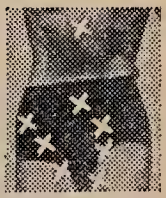

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LAST LAUGH *Continued from page 93*

Then followed the lines:

"Stranger pause and drop a tear
For Emily Church lies buried here
Mixed in some perplexing manner
With Mary, Matilda and probably Hannah."

An entry in the scrapbook of the late Clara J. Hallett of Hyannis, Massachusetts leaves little room for doubt that the marble cutters themselves were not above sin when it came to making a sale.

"Here lies Jane Smith wife of Thomas Smith, marble cutter,—
This monument was erected by her husband
As a tribute to her memory and specimen of his work
Monuments of the same style — $250. —"

Miss Hallett's own conclusion, written to me in a personal letter, shortly after her one-hundredth birthday perhaps should be quoted here. In itself, it remains a better epitaph to this subject than would any additional listings of more of these stones, however humorous to passersby these might be. In this, one prefers Miss Hallett's natural inborn New England reverence to the amusement or raucous laughter which some such stones produce.

"Today we would never think of advertising our virtues or vices or even our grief on a tablet of stone that marked the resting place of our loved ones. The two dates of birth and death have come to be all that shows the world we have lived and died.

Why such doleful and also amusing epitaphs were chosen long years ago we do not understand, unless it was just the incipient germ of advertising beginning to expand and come to life. Advertising was not one of the great sources of income then as it is today. Some stones even named the business and terms to customers of the party who erected the stone. How strange, amusing and pathetic it seems. Some express such faith in celestial bliss, others foreshadow eternal doom. Once in a while I like to roam around in some of the old cemeteries that we seldom enter except for a funeral. They are about the only quiet, peaceful spots left to us now. When we realize that all these people here lived and died and how the world goes on just the same from day to day and from year to year, we get a different, broader view of what eternal life means. We are just atoms, images of a world of spiritual atoms, that keep the world moving. If we drop out,—our place is filled."

AMEN.

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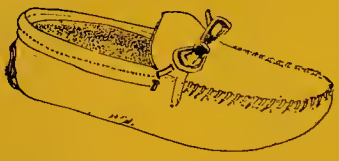

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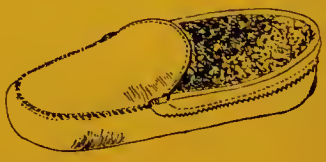

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